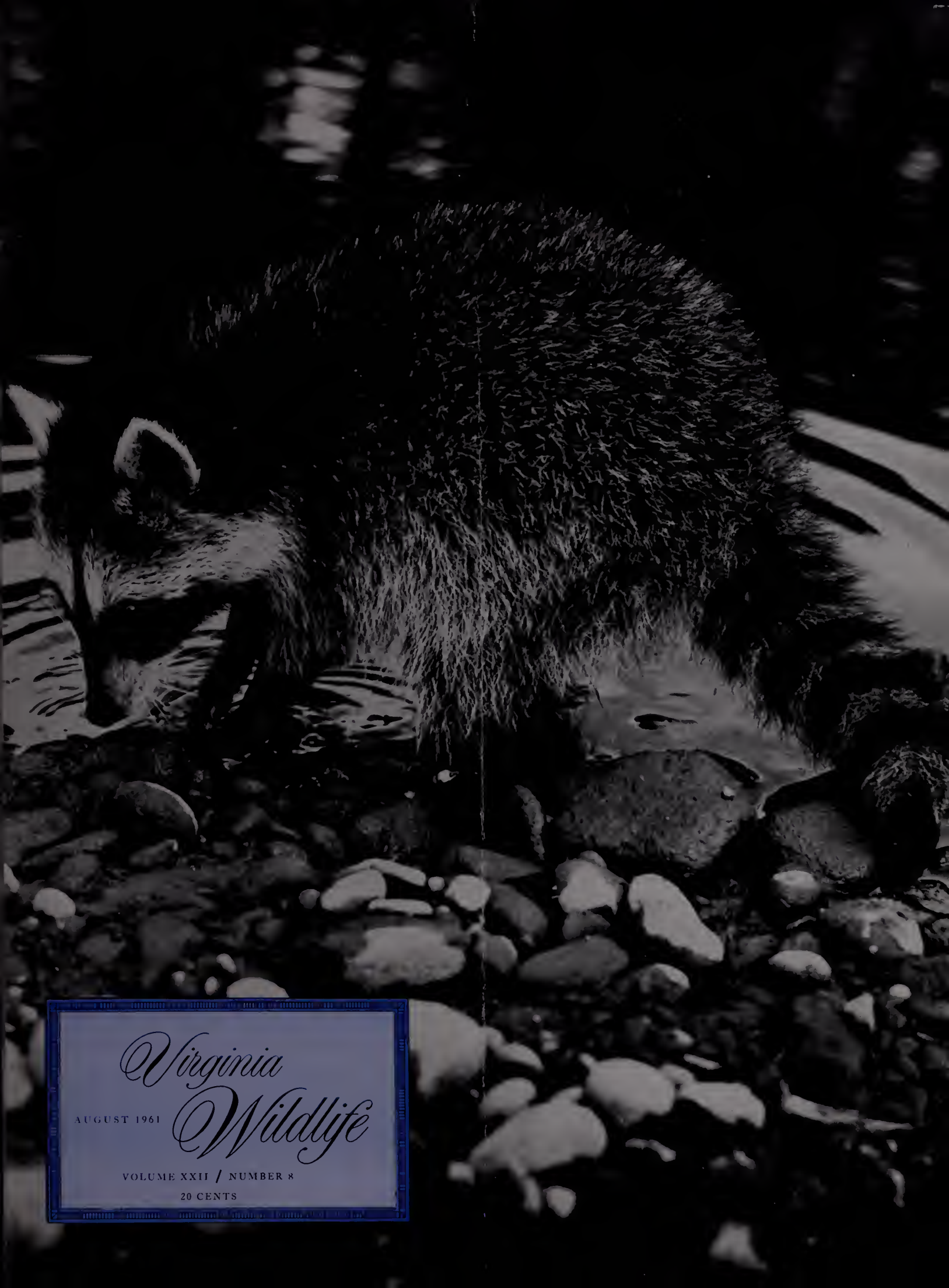

Virginia Wildlife

AUGUST 1961

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Virginia Wildlife

Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources and to the Betterment of Outdoor Recreation in Virginia

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COVER: Found in hardwood forests near water, the racoon often seems to wash its food before eating it. "Old Ringtail" is less common in western Virginia than in the eastern part of the State where farmers have found that it eats corn, fruits and vegetables as well as aquatic life such as fish, crayfish and turtles. Photo by Leonard Lee Rue, III.

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EDITORIAL

Down Through the Years With "J. J. S."

"WE live in a dynamic world; even the most skeptical of men must now admit that 'change' is one of the great characteristics of our planet."

These words of Joe Shomon's, which originally appeared in his January 1958 VIRGINIA WILDLIFE editorial, are appropriate again this month as we pause to look over the grand collection of inspiring and uplifting articles and editorials he penned for all Virginians to enjoy during his 14-year tenure at the helm of this magazine. For a change has indeed taken place—Dr. Shomon is directing a nationwide nature centers program now from the New York offices of the National Audubon Society—and we find ourselves wondering if we can ever begin to fill this column with the kind of colorful prose for which our predecessor was justly acclaimed.

Joe occasionally wrote of hunting and fishing here. A 1953 lead paragraph: "To the nimrod, November days mean the thrill of the chase once more—a chase that began long before the dawn of history. Born of grim necessity when the struggle with nature was violent, hunting has come to be a recreation, a pastime, a way of getting back to the joys of primeval living." The climax of a 1960 column: "We were impelled by the desire to wrestle with those great battlers of the surf, channel bass, it is true, but the force that really drove us was less definite and far more sublime. . . ."

His poetic descriptions of the coming of the seasons were full of sights, sounds, and smells. "Spring is the great mysterious door to a fresh, wholesome, exciting outdoor world," he wrote eight years ago. And in 1959 he exclaimed, "One cannot pause more than a moment outdoors in April and not be moved by the power of spring. The season steals in slowly, like an early robin, then gains momentum; finally, comes the full ground swell that has everything bursting. . . ." Leave your routine and go to nature, he urged. "Go to some hemlock glen where protecting rootbanks still shelter brook trout; go to some high place in the wooded hills where the ravens croak and soar in concentric rings hours on end; go to a windswept beach where the sea pounds out an awesome battle with the land. . . ." "Go to October's fountains of refreshment and fill your empty bottles with the mellowest wine in the world. . . ."

But the outspoken point or the underlying theme of Joe's editorials was the need for the preservation of what is left of the natural scene. "Mankind today is plagued by false promises of complete dominion over the forces of nature. Let him not be fooled. Man's boasted 'conquest of nature' can be his Armageddon."

"Looking and listening to the world around us, we can learn more each week, each day, each moment."

"As we change the natural world for an artificial one, we break many of our links with the good earth. Enough loss of natural things and our civilization will become a hollow land."

"When the marshes and other wetlands go, so will their power to inspire men's hearts or heal their troubled souls."

In sum, what Joe Shomon asked of the world was selfless attention to the betterment of mankind through observance of the laws of nature. "If men would all help to contribute to the common tasks of humanity—and conservation is only one such task—by making life easier, pleasanter, nobler for others, this world would be secure," is the way he phrased it back in 1957.

We will certainly miss you, Joe . . . you, and those inspiring words of yours!—M. R. C.

LETTERS

Helped Survey Mt. Rogers

I always find something of interest in your excellent magazine and this was particularly true of the article on Mount Rogers by Professor Shields in the May issue. The author refers to the triangulation survey in the early 1930's. When I was a student at the University of Virginia, I worked during the summers on triangulation parties as an employee of the United States Coast and Geodetic Survey. I spent a month in this capacity on Mount Rogers during the summer of 1930.

Triangulation involves the measuring of the angles of triangles on the earth's surface and Mount Rogers was the apex of several such triangles, the sides of which ranged from 30 to 60 miles in length. This measurement was done by an "observing party" on one mountain using a theodolite to run the angles between points on the other mountains. Because of the relative lack of horizontal refraction at night, the measurement was done at night and the points were marked by lights upon which the observations and readings were made. Each mountain had one light and each light required a lightkeeper, and that was my job. It was a lonely existence, especially on a station like Rogers. Those permanent members of the Geodetic Survey who came from the western states insisted that the only form of human life lower than that of the sheepherder was a geodetic survey lightkeeper. This was a canard which I have always stoutly denied. However, I must admit that the life was not particularly marked by elegance. I think many a self-respecting hunting dog would decline the corn bread which I made for myself. Its ingredients were corn meal, salt, water and weevils. And the mold on the bacon grew as thick as beaver fur.

I camped near a spring a little below the line of the conifer "cap" which Mr. Shields describes so interestingly. I estimate this site at about 5,000 feet altitude. There was no trail to the top of the mountain where I had to be at sundown every night to turn on and tend my light. Until I worked out a trail by trial and error, this was rough going both on the way up and on the return to camp about midnight. The many exposed and twisted roots found in such a stand of balsam and spruce, containing an element of beauty in retrospect, were unappreciated obstacles at the time.

Mr. Shields refers to the scarcity of snakes on this mountain. In my month there I saw only two: one on the very summit I could not identify; the other, a little below the balsam line, was a rattlesnake. There is no doubt about the latter's identify. I think his rattles are still with souvenirs in my attic.

I haven't been near Mount Rogers since 1930 but have often wondered about it. I am glad to hear that it is still inaccessible. I am delighted that a good part of it is held in public ownership and that it is being used by Mr. Shields as a natural and "superb laboratory." I can think of no better status for this grand and majestic mountain which is Virginia's highest.

Norwood B. Orrick
Baltimore, Maryland

TOM TURKEY TESTS

By C. H. SHAFFER,
Supervising Game Biologist
Lynchburg, Virginia

Commission Photos by Harrison

IT was a beautiful spring morning during the latter part of April, 1961. Two bleary-eyed game biologists had just completed the process of checking out the last of the turkey hunters on Camp Pickett. The day that had started for them at 2:30 a.m. was going to be a hot one. It seemed strange to be in a hunters' check station at this time of the year. Shuffling through the turkey kill cards, one of the men looked skeptically at the other. "After four mornings of this experimental gobbler season, what do you think of it now?" he asked.

Without hestitation the other replied. "Well, I guess that evaluation depends on whose point of view you are examining. These fellows who have hunted here this week seem to be absolutely carried away with the thrills of matching skills with these big ol' gobblers. I've never seen so much enthusiasm for any sport in my life. Don't you agree?"

"I certainly do. It's amazing."

"On the other hand," continued the more talkative biologist, "we know that there are many sportsmen in Virginia who are conscientiously opposed to this experimental spring season. Looking at this hunt from the turkey's standpoint, it must be a real shock to the old gobblers to get shot at in the midst of their courting activities, but on the other hand it gives the young gobblers a break. So I repeat, it's all in your attitude."

The other agreed, then added, "I might be biased, but it appears that we are providing a great deal of exiting recreation to these sportsmen. I can't see how they can hurt the future turkey populations here by harvesting only the surplus old toms; they're expendable. It's exactly the same principle as shooting buck deer. Everyone knows that deer populations have flourished in Virginia, but few people consider the fact that our deer season falls right in the middle of their breeding season."

During the experimental gobbler season on the Gathright management area in April, State Game Warden R. F. Jenkins and Supervising Game Biologist J. E. Thornton teamed up to check hunters' licenses and at the same time obtain their observations and opinions of the hunt.

The subject of a spring gobbler season in Virginia is still being discussed from all angles in many sections of the Old Dominion. But let's begin at the beginning to put this discussion in its proper historical perspective.

For years, many of Virginia's sister states to the south have had legal spring gobbler seasons. Some of these same states also have fall seasons permitting the taking of gobblers only. Through the years there has been an increasing number of Virginia turkey hunters who have either read about or experienced the sport in other states and have inquired about the possibilities of a similar season in our own state. Proponents of a spring gobbler season advanced the following arguments:

1. With increased hunting pressure and competition with hunters of other game species and with dogs, it is extremely difficult to call up turkeys successfully in the fall. A spring season would help to compensate.

2. There is a tremendous loss of hunter recreation because most turkeys are being harvested not by yelping or calling but accidentally or incidentally.

3. Many of the old gobblers are not being harvested in the fall of the year.

4. Shooting of surplus toms cannot hurt the turkey population since turkeys are polygamous and practice a harem system of mating.

However, in March when the Virginia Commission of Game and Inland Fisheries proposed an experimental spring gobbler season on three controlled areas (Camp A. P. Hill, Camp Pickett and the Commission-owned Gathright area) objections were raised from other segments of Virginia's sportsmen. Some of the arguments against the proposed season were:

1. It is not wise to hunt during the breeding season; nests will be broken up and turkey and other game species will be adversely affected.

2. It will teach the violators a new technique and a new time of year to poach wildlife.

3. Gobblers killed during the spring of the year are not fit to eat. Their breasts are spongy and the birds invariably taste like wild onions.

4. It is not traditional to hunt in the spring with mosquitoes, ticks, chiggers and snakes present.

5. Spring gobbler hunting on just three isolated Commission-controlled areas would not prove anything, so why not forget it?

Perhaps realizing that nothing definite either good or bad could be learned about a spring gobbler season without actually testing it, the Game Commission voted in early

April to proceed with the experiment on the three areas. The last full week in April was selected for the hunting experiment—Monday through Saturday. April 24 through April 29. (Gobbling observations carried out by Commission personnel in previous years showed that the peak of gobbling activity was usually on April 28). The regulations specified that bearded turkeys only could be hunted from one half hour before sunrise until twelve noon. It was ruled unlawful to utilize dogs or to have organized drives during the week's experiment.

Because of a number of local factors such as troop training on the military bases, additional rules were adopted for each area. On Camp A. P. Hill several regions were closed to gobbler hunting due to troop training. Sportsmen who wanted to hunt on Camp Hill had to request in advance a permit for the day they preferred to hunt. A limit of 250 hunters a day was set as the maximum.

On Camp Pickett a limit of 175 hunters were permitted on a first-come, first-served basis. Army maneuvers meant that all hunters had to be off the base by 8:00 a.m., and the entire camp was closed to hunting on Friday, the 28th.

There were no limits placed on the number of hunters on the Gathright area, but the Bolar Ridge sanctuary was kept closed to hunting. On all three controlled areas hunters were required to check in and out at contact stations and were asked to fill out questionnaires on their observations.

What actually happened? What results were obtained? As our friend expressed it earlier, it all depends on your particular viewpoint. For those interested in cold statistics here are some facts and figures:

CHART I

Daily Hunting Pressure and Gobbler Kill (All Areas)

Date	Hunter Days	Total Kill
April 24 (Mon.)	488	10
April 25 (Tues.)	288	7
April 26 (Wed.)	182	7
April 27 (Thurs.)	133	3
April 28 (Fri.)	80	0
April 29 (Sat.)	275	7
Totals	1,446	34

CHART II

Area Hunting Pressure and Gobbler Kill

Area	Hunter Days	Total Kill
A. P. Hill	515	5
Camp Pickett	471	24
Gathright	460	5
Totals	1,446	34

The term "hunter-days" may be questioned since on Camp Pickett the hunters were permitted on the base only four hours each day. Actually most of the gobbling, the calling and the harvesting occurred between 5:00 a.m. and 7:30 a.m. at which time practically all the action was finished for the day.

The hunting pressure for the three areas was almost identical, even though each had different hunter requirements. Even on the areas where a daily quota of hunters had been set, no sportsmen had to be turned away. The hunting pressure data is comparable to that collected in previous years in the fall of the year on the state forests and on other controlled areas. First-day pressure is inevitably the highest with hunter participation gradually decreasing until Saturday when there is always a slight upswing.

The majority of the 34 turkey gobblers collected were beautiful trophies—the kind you dream about but so seldom see at the check stations in the fall of the year. Most of them were heavy, had long beards and sharp spurs. As could be expected from the season of the year, their necks and heads were a patriotic red, white and blue. Their breasts were large and their wing tips were well worn from strutting. Three of the gobblers checked weighed over 20 pounds, but undoubtedly the heaviest bird of all was a 19-pound, 9-ounce tom from A. P. Hill that had been drawn before weighing. Sixteen of Camp Pickett's 24 gobblers ranged from 17 pounds to 20 pounds, 4 ounces.

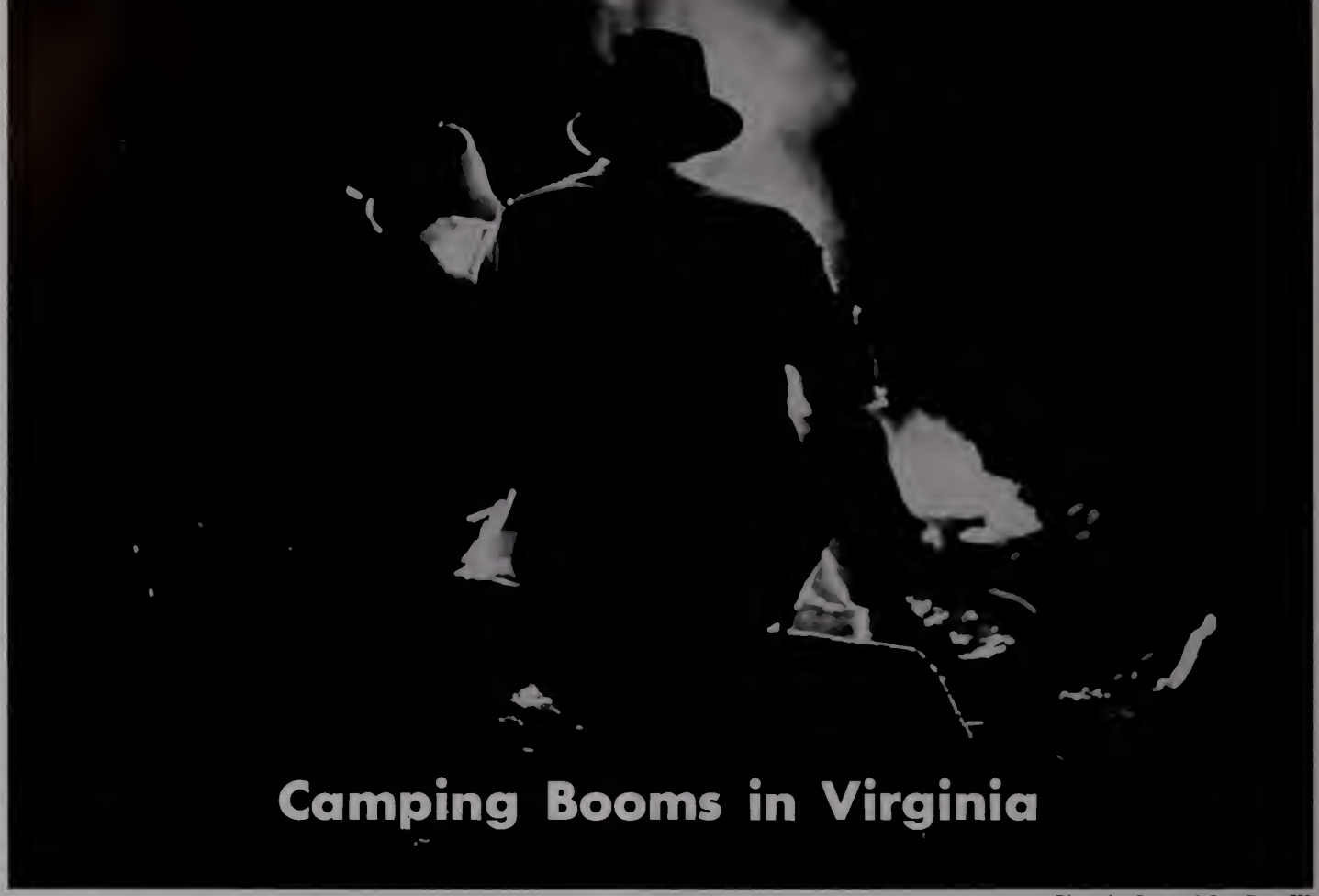
Considering all of the complicating factors, the kill was believed to be excellent. This supposedly was an entirely new type of hunting for Virginia hunters. Even experienced callers found it to be a much more difficult and different proposition from the autumn variety of turkey hunting. Aside from the first morning when things were relatively still, a persistent wind invariably started blowing soon after sun-up. Naturally this had adverse effects on the hearing range for the hunters and gobblers alike. For example, on A. P. Hill on Monday morning 18 different gobblers were heard by two observers. The following morning, due to a healthy gale, only one gobbler could be heard over the same route.

During the last three days on Gathright it was unseasonably cold and snow fell on the mountains on Saturday. Another factor which unquestionably affected the total kill was the fact that A. P. Hill had been opened to turkey hunting during the entire 1960-61 season and 55 turkeys had been collected there, while both Pickett and Gathright had been closed to turkey hunting the previous fall. Practically all the hunters interviewed had opportunities to get a gobbler. The common excuses prevailed—the hunter "goofed," someone interfered, or the gobbler wouldn't cooperate.

There were a number of gobblers crippled or just plain missed. Two turkey hens were killed, both on Camp Pickett. In both cases the hunters voluntarily reported the incidents to the state game warden. One man shot his bird on the

(Continued on Page 12)

Earl Broughfman of Hot Springs used a .30-.30 rifle to down this 18-pound tom on the Gathright area this spring. Its 9¾-inch beard is clearly in evidence. Attaching the official big game tag is State Game Warden J. W. Crickenberger.



Camping Booms in Virginia

Photo by Leonard Lee Rue, III

Camping isn't as comfortable as a luxurious motel, but it is more fun, costs less and gives you a priceless appreciation of the out-of-doors.

By GEORGE H. HARRISON, *Associate Editor*

VACATIONS are expensive. Motels with air conditioning, TV, and swimming pools run the bills up and the pocketbooks down. The increasing expense of a family vacation is the primary reason why outdoor camping has boomed in Virginia and throughout the country.

Camping can be a thrilling, inexpensive vacation in the outdoors far away from taxis, crowded beaches, hot pavement, and traffic cops.

Camping by no means demands that the members of your household have a rugged, pioneering spirit. It does give you an opportunity to enjoy a vacation together following a relaxed schedule and an informal routine as a change from living by the clock. You may plan an itinerary covering a number of recreation areas or simply an unhurried stay at one particular site. But whatever you plan, every member of the family can share the fun of a camping trip.

Virginia residents and visitors are fortunate to have more than 1,100 developed public camping sites in about 40 parks and recreation areas of the state.

In seven state parks—Claytor Lake, Douthat, Fairy Stone, Hungry Mother, Staunton River, Westmoreland and Breaks Interstate Park—the outdoor camper will find excellent facilities on some 300 campsites. Most of these have tent and trailer accommodations with washrooms, showers, laundry, rest rooms, drinking water, garbage disposal cans, outdoor ovens and bathing beaches. For a $1.50 a day or less, the camping family can have two weeks of outdoor living that beats any vacation costing up to 10 times as much.

Virginia's two national forests, the George Washington and the Jefferson, provide generous camping facilities at about 200 sites. Several areas have the luxury items listed for the state parks. The cost is absolutely nothing in most cases; a few sites have a 50- or 25-cent a day charge per person. The camper may stay in these areas as long as he wants.

Shenandoah National Park, with its 246 developed camping sites at Big Meadows and 26 more at Lewis Mountain, allows the camper two weeks of free camping.

The Blue Ridge Parkway invites campers for two weeks of free camping at its 122 sites at Otter Creek, Peaks of Otter, and Rocky Knob.

Prince William Forest Park, a National Capital Park, has six family camping sites and six group camping sites which will accommodate 20 to 100 persons each.

Thanks to the U. S. Army Corps of Engineers, Virginia campers can enjoy John H. Kerr Reservoir and Philpott Lake, both in southside Virginia. At Kerr, 140 developed camping sites await the public in three areas. Two areas are free and the third, Occoneechee Park, costs $1.00 a day.

At Philpott, 63 camping sites are provided on four areas. Camping is free at three of them, $1.50 a day at Twin Ridge Marina.

Camping on both Kerr and Philpott is allowed for two weeks without a special permit.

Northern Virginians have two local camping areas—Bull Run, owned by the Northern Virginia Regional Park Authority, and Fairfax Park Authority-owned Burke Park. Both of these areas have tent camp sites with rest rooms, drinking water, garbage disposal and outdoor ovens.

There are a number of privately owned camping areas throughout the state, most of which provide all the necessary

facilities. One such park, located at Gordon's Creek on the lower Chickahominy River, has about 50 tent sites and a cinderblock rest room and shower house. Another, 15 miles east of Fredericksburg, provides hunting, fishing, boating and swimming. Most of these privately owned camp grounds charge a reasonable fee.

If you are a more rugged camper, Virginia is loaded with opportunity for you too. Approximately one-fourth of the entire length of the Appalachian Trail lies within the Commonwealth of Virginia. The Trail enters the state at the Sandy Hook bridge, one mile below the junction of the Shenandoah and Potomac Rivers at Harpers Ferry, and follows the mountains 506 miles to the southwest where it leaves Virginia at Damascus on the Tennessee line. At fairly equal and walkable distances, lean-tos are provided, numbering about 38. The lean-to is a structure with an open front that is equipped only with two bunks. All travelers are welcome to use these lean-tos to the limit of their capacities.

Overnight camping is prohibited at the Virginia Department of Highways "waysides," but automobile travelers are invited to park and picnic at these 40 waysides until 10 p.m.

Commission Photos by Harrison

There are many kinds of tents from which to choose—those which attach to a car, those which are separate but can be rapidly set up, and those which are better for a fairly permanent camp.

A gasoline or propane stove and an icebox large enough to hold a 25-pound block of ice simplify food preparation and storage. Nested aluminum pans, cups and plates are available in compact sets.

With the camping boom, many persons are wondering how they, too, can become outdoor campers. It's easy. Outdoor camping can cost very little, and it can cost quite a lot; it's up to you.

Most Virginians are more interested in the economical version of outdoor camping. These people should first investigate the fine equipment now available for station wagons and car vacationers. If you, like most campers, are limited to the trunk and possibly a car carrier for storage, you'll want to think about packing the most comfort possible into the available space. Will you bed down a youngster or two in your car or station wagon? Would you prefer a tent entirely separate from, attached to, or even on top of, your car? Will you stay put at one site or move on to new camps frequently; and, therefore, will you need a fairly permanent type of tent or one that can be rapidly set up with a minimum of effort? With these personal factors in mind, you'll be ready to compare styles, overall dimensions, weights, flooring, mosquito netting and other variations in the many highly satisfactory tents now being marketed.

Sleeping bags and air mattresses provide more warmth and comfort than cots and take up no more room. "Single-double" bags with duck-and-down or miracle fibre fillers are a good buy for comfort and adaptability. These bags may be used individually or zipped together to form a double sleeping bag.

A gasoline or propane stove and an icebox large enough to hold a 25-pound block of ice will simplify food preparation and storage. Nested aluminum pans, cups, and plates, which provide for all your cooking, eating, and dishwashing needs, are available in compact sets for four to six persons. On the other hand, plastic dishes are becoming increasingly popular, and those long-time favorites, enamel cups, are easy to handle when filled with steaming beverage or soup. Don't forget a plastic water bucket, a shovel, an efficient lantern and, of course, a hatchet.

Other necessities are toilet paper, warm clothing, insect repellent, first-aid needs, matches and a compass.

For further information about camping facilities from these listed areas write:

Division of Parks
State Office Building, Richmond 19, Virginia

George Washington National Forest
Federal Building, Harrisonburg, Virginia

Jefferson National Forest
Federal Building, Roanoke, Virginia

Shenandoah National Park
Luray, Virginia

Blue Ridge Parkway
P. O. Box 1710, Roanoke, Virginia

John H. Kerr Dam and Reservoir
Route #1, Box 76, Boydton, Virginia

Reservoir Manager
Philpott Project
Route #2, Box 140, Bassett, Virginia

Prince William Forest Park
Triangle, Virginia

As the veteran camper will tell you, outdoor camping isn't as comfortable as a luxurious motel, but it is more fun, costs less and gives you a priceless appreciation for the great out-of-doors.

Virginia Chamber of Commerce Photo

Every year hundreds of Virginians purchase their first boat and turn to Chesapeake Bay and its tributaries (such as the Potomac River, above) for recreation. They soon learn that while these waters furnish wonderful recreation there are many new skills to learn in order to cope with the sea.

The Art of Seamanship – Part Two:

Man's Ability to Cope with the Sea

By FORREST R. BRAUER, *Training Officer*
Flotilla 51, U. S. Coast Guard Auxiliary

VIRGINIA, with its Chesapeake Bay and its many tributaries, has been blessed with not only one of the largest but possibly the most beautiful body of water for cruising and water sports of any state in the nation.

Consequently, every year hundreds of Virginians purchase their first boat and turn to the Chesapeake and its tributaries for recreation. They soon realize that while these waters furnish wonderful recreation there are many new skills to learn in order to cope with the sea. These new skills which they seek have been aptly defined as the Art of Seamanship.

Heavy Weather

Every skipper should be conscious of weather conditions at all times. While sudden squalls often occur on the water they are usually over quickly. However, they can be dangerous to the small boatman while they last. The more severe storms, especially those preceding cold fronts, are accompanied by dangerous winds and high seas. These conditions often can be foreseen by an alert skipper and he should take the necessary precautions immediately.

Quite often if there is going to be a change in the weather it will occur with the change of the tide. It should also be noted by a skipper that the water is fairly moderate when seas are running in the same direction as the wind and current; when the tide changes and the current is reversed and running against the wind, seas will become steep, usually worsening as the current increases in velocity.

With an outboard, when storms are approaching a skipper can run ashore quickly. With an inboard or larger boat he should make port if possible. Sometimes this cannot be done and other preparations should be made to ride the storm out. Heavy rains usually accompany such storms and the skipper should anticipate zero visibility. He should take a fix to obtain his position, determine his destination and plot his course. While doing this, he should have someone secure all moving objects in his boat. The position of all other boats in his vicinity should be checked, especially larger boats, to see if any will be crossing his course when visibility is reduced to a minimum. Another precaution is to leave his heaviest anchor rigged for emergency use.

When the storm does hit, slow down and keep your boat from pounding. On small boats especially, keep the bow buoyant. Shift gear or passengers. The stern should also be kept buoyant. If seas become too steep, hove to and keep the bow into the wind or just quartering the seas. Most boats ride better this way. Should the seas get too rough turn and run with the sea. Avoid beam seas when seas are heavy. Keep the stern to sea and you will avoid yawing and broaching. To keep vessel under control keep steerage way at all times.

The bilge should be checked for taking water and also to see if gas lines are leaking due to boat working in heavy seas. If you're in unfamiliar water, the depth should be checked often. Don't panic. Your boat can take more than you think if handled properly.

Fog

Fog is one of the hazards that a skipper will encounter occasionally on the water. If he is alert, the skipper can usually see this condition developing before his boat is engulfed in it. Fog will start in patches over the water and can be observed forming up or down the river or on one side of the river in creeks and marshes. When he sees this fog developing he should make port as quickly as possible. If the fog starts closing in he, of course, can expect zero visibility and, as noted above, preceding a storm he should take a fix, determine his position and destination, then set his course. A compass is essential to run under such conditions. Speed should be reduced so that you can stop in one-half the distance of visibility. One prolonged blast should be sounded on the whistle or horn every minute the boat is under way. It's a good practice to have someone seated on the bow for a lookout and to listen for other boats. Should a fog signal from another boat be heard forward of the beam, the boat should stop, reverse if necessary, determine the position of the other boat, then proceed cautiously.

The safest procedure in a fog is to get into shallow water, anchor and wait until it clears up. When class 2 and 3 boats (26 feet and over) are anchored in a fog they should ring a bell for five seconds every minute.

Assisting Other Boats

One of the cardinal principles of seamanship is to be ready at all times to render assistance to others needing help. The best way to approach such boats is to back down to them; in doing so, you keep your own boat under best control. It is safest to pass a tow line from cockpit to cockpit. If seas are running adjust the length of the tow line so that both boats are on the forward or same slope of wave. If a boat is towing another boat much heavier it may be desirable to use a bridle and the boat towing to tow from its forward bit. A heavy tow on the stern of a boat handicaps its maneuvering. Keep clear of a tow line. If it parts it can be dangerous.

Engine Failure In Storm

When a motor stops in rough weather the boat should be anchored to keep out of the trough of the sea. The anchor should be handled from the forward hatch if available. On a raised deck cruiser a lifeline should be used. In an outboard all on board should put on life jackets.

Usually, when an engine fails in a rough sea sediment and trash from the gas tank have stopped gas lines. The strainer to the carburetor should be checked.

To avoid this condition happening galvanized gas tanks should be flushed once each year or two by inserting a pump into the bottom of the tank and pumping out sludge, refilling and flushing until clear. When sediment and sludge are in a tank, rough seas loosen them and they quickly foul the gas lines.

Aground

Sooner or later, if we cruise in unfamiliar waters, we will quite likely have the unpleasant experience of running aground. In most of our waters this is not a serious accident, because of the soft or sandy bottom. In such cases, if we react quickly by reversing our engine immediately, we can catch the stern wave which our boat causes when it runs aground just as this wave moves forward and momentarily lifts the bow and, giving the engine full throttle, back off.

Commission Photo by Cutler

Many sport fisherman gain access to Chesapeake Bay at Messongo Creek Landing on Route 788 below Saxis on Virginia's Eastern Shore.

If we are not successful and the wind or current is forcing the stern around an anchor should be set to windward to hold position and made fast to a stern cleat.

All movable gear should be placed on the stern as well as crew. One procedure which may be tried is to put the engine in reverse, set the speed at about 1000 r.p.m.'s for about ten minutes, then give the engine full throttle. Running the engine at slow speed in reverse will sometimes clear out sand or mud from under and around the bow. However, in doing this watch the temperature gauge and if engine begins to heat up, stop the engine.

Of course, you can always wait for the tide to rise or for assistance from another boat. If the boat aground is a heavy boat and hard aground, it should be bridled and pulled from the forward bit.

Hazards To Avoid

A small boat should never leave the dock without life preservers for each person, a paddle, anchor and bailer. Such boats should be careful never to overload. When a boat is

"A small boat should never leave the dock without life preservers for each person, a paddle, anchor and bailer."

overloaded it lacks buoyancy and freeboard and can be easily swamped by a passing boat, even small waves or a quick turn. Should your boat be overturned, never leave it as long as it is floating. You will be found much easier.

Watch for floating or partially submerged objects. Keep away from stakes around old fish nets and piles at old wharfs. Ice sometimes cuts these off at the water line and may not be seen until too late. Give a wide berth to large vessels and barges being towed. They have dangerous wakes.

In the winter never venture out in a wooden boat if skim ice or any ice is on the water. Skim ice can cut through a hull in a few moments.

Extra precautions should be exercised when boating in the winter. Overturning in a boat in the summer may be only a mild incident but in the winter it could be disastrous.

While many of these things are not pleasant to think about it's best to know about them. Then taking the proper cautions we learn better how to cope with the sea and enjoy our new found sport, recreation on the water.

Boat Galley Fuel Caution

There are no restrictions regarding the type of galley stoves or fuel used for galley stoves on motorboats in Virginia unless the boat is carrying passengers for hire. However, the Game Commission cautions boaters to be extremely careful when using liquid petroleum fuels in their galley stoves.

A Major Game Mangement Principle - -

THE BIG EDGE

By ROBERT H. GILES, JR.

ANY "land manager" who must choose between-the-fields practices that will influence wildlife should recognize a major principle of wildlife management—the principle of edge effect.

Definition

Land "edges" are difficult to define. Obviously, an edge is a boundary where one kind of land use starts and another stops. A dictionary defines edge as a "border or margin," but this does not fully explain it when we realize that there are no clear-cut limits to a forest-field edge. We may only with uncertainty say that the border is "of the forest" or "of the field."

The sportsman shows a practical knowledge of the concept of edge effect when he hunts the field borders rather than the field centers, the brush piles rather than the crop rows, the brushy fence row rather than the wire fence, the broken forest rather than the park-like stand, the shrubby coverts near pines rather than pure pine stands, and when he fishes near shore, next to the lily pads and under logs.

Edge effect may be defined as the great attraction which edges have for wildlife and the ability of these zones to support large, varied wildlife populations.

Aldo Leopold said that the amount of game observed is proportional to the sum of the distances around the types of vegetation. He pointed out that "game is a phenomenon of edges" and gave these reasons: (1) wild animals have immediate access to more than one environmental type, (2) they have access to a greater richness of desirable border vegetation, and (3) they desire the combination of the first two factors.

Edges have four basic characteristics. Studies have shown that the quality of grouse habitat is roughly proportional to the *variety* in composition and arrangement of the plants of which it is composed. This principle may be applied to many forms of wildlife, particularly farm game species having small home ranges and several plant requirements.

The different types and age classes of plants where two or more plant communities join provide not only a selection of food and year-round cover, but also a continuing supply of food that provides varied nutritional requirements. Fruit failure of one or more species of plants does not severely affect wildlife as such failure might in a single plant community. Alternates—secondarily preferred foods—are available when one type within the edge does not produce.

Edges have *depth*. Edge is a line value, but also must be visualized as a condition of depth. This characteristic too often is overlooked and research is needed to determine the desirable widths or depths for possible application in land management. The edge between a woodlot and a corn field is not the fence that divides the two. The edge is the plant associations that begin within the woodlot where the influences of the field stop, and extends out into the corn field to where soil moisture, root competition, and shade influences no longer are evident. It is the brushy border between field and forest, the mixture of grasses and shrubs between fence and field, the weedy growth between field and water that establish small strips of new edge—new communities within themselves.

A quantitative measure of edge and probably the best measure of edge effect is length, the distances around individual plant communities. Wildlife numbers normally are directly proportional to the number of feet of edge per unit area of a community.

Small woodlot clearings of approximately one acre have long been recommended for forest game. The amount of edge provided is a major reason for this recommendation. It is interesting to consider length of edge as related to the shape of such clearings, even as related to other types of land use. Use of simple arithmetic allows the following observations: Edge increases as an area is elongated from a circle to a narrow rectangle; a circular acre has 11 percent less edge than a square acre. The more strip-like these wildlife clearings, the greater will be their edge effect. Limitations on minimum width are established by tree height, shading, and competition. A width of twice the height of the average tree is tentatively recommended as a desirable minimum.

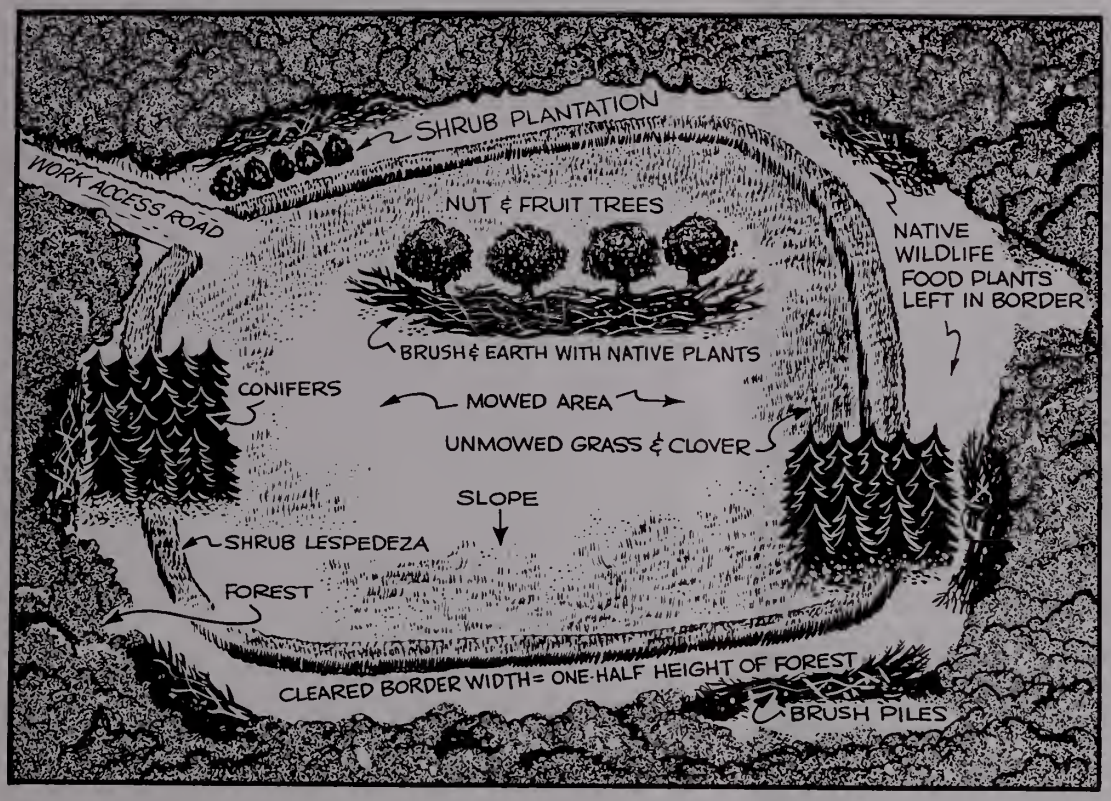
"Composition" differs from "variety" in that it denotes plant types and their association with each other. *Interspersion* is the term frequently used to describe the edge characteristic that is vital to high wildlife populations. Though a variety of plants may be available, these plants and plant groups must have an arrangement conducive to wildlife production. Corners, where a variety of plant types intersect, are especially valuable to wildlife. The more such corners that can be provided—that can be interspersed throughout the land—the better will be the wildlife habitat and, as a consequence, the larger will be wildlife populations. Game species require from one to four environmental types on each unit of their home territory and most species require three or four.

Edge effect, then, is the sum of the influences of all the characteristics of edge. The main functioning characteristic is composition with contributing dependent factors of variety, length, and depth.

Application

It is axiomatic that fertile soil produces abundant wildlife, but intensive wildlife production on fertile soil is usually expecting too much from economy-conscious landowners. Wise management can override this limitation by applying the principle of edge effect and can capitalize for wildlife on otherwise unproductive lands.

The author is a Graduate Fellow with the Ohio Cooperative Wildlife Research Unit, Ohio State University, working toward a Ph.D. degree in wildlife conservation. Previously he was district game biologist with the Virginia Commission of Game and Inland Fisheries. This paper is adapted from Release No. 211 of the Ohio Cooperative Wildlife Research Unit.



A forest wildlife clearing showing plant type combinations to obtain great edge effect. Clearings such as this are bulldozed on national forests in Virginia by the Virginia Commission of Game and Inland Fisheries. Bulldozed portions extend to the shrub lespedeza strip; portions of brush and debris are pushed into an "island" to provide a water brake, leave topsoil within the clearing, and provide cover and openland wildlife food. Conifers are planted; mowing by tractor or hand snath is done irregularly as needed.

It is realized early in any wildlife management program that, of the two major factors affecting wildlife abundance, productivity and habitat, men must work with the latter.

Contour farming and stripcropping produce many more cover types and borders that benefit most farm game than did the old block-farming methods. Planting large fields to a single crop provided little variety for wildlife and did not tend to build soil fertility, an essential for good wildlife as well as crop production.

To combine wildlife production with agricultural production does not necessarily require a change in acreage, but changes in edges. People interested in increasing wildlife numbers must be concerned constantly with the arrangement of things. To obtain optimum interspersion, land must be broken up into small units and mixed together. Utilization of rock outcrops, ditches and ditch edges, gullies and eroded spots, ponds, roadsides, and old wood roads can be effective application of edge effect for wildlife. The common wire fence which wastes a minimum of one acre of land for every two miles of fence can, under proper management, provide the edge essential for wildlife production.

Where field edges join forests there is unlimited opportunity for wise, multiple-use treatment of a small land area. Improvement of the edge can be made by establishing a border of recommended plants valuable to wildlife. A natural border can be made by clearcutting the woods around the field in a strip as wide as one-half the height of the average-size trees. Maintaining these two practices establishes a turn row for equipment, converts an area of poor crop production, builds and holds soil, provides additional edge depth for wildlife, and eliminates competition between forest and crops for nutrients, light, moisture, and space.

A clearcut strip should be maintained in vegetation gradually grading in size from grasses near the field to pole-size trees near the forest. Such a diagonal canopy of leaves can be kept by mowing, brush cutting, pruning and use of herbicides. Planted edges also require occasional applications of fertilizer, seasonal mowing, reseeding, and even reworking the soil.

To summarize: Edge is an interrelated community of plants and animals between two types of land use. The evidence of edge effect is this community's ability to attract and support a great variety and density of wildlife species. The magnitude and quality of edge effect embraces the factors of composition, variety, depth, and length. Knowledge of the effect and factors influencing this concept will enable land users to increase wildlife production by wise use of edges and also secure the additional benefits of the elimination of competition between forests and crops, prevention of erosion, and soil improvement.

Department of Cats

Man himself, being the greatest predator the world has ever known, should be careful about casting aspersions on the lesser predators such as cats.

There's a six-foot-four gentleman across the street and his two six-foot-three sons who annually bring home more dead birds than the most dedicated cats in town.

We have three families of cardinals, numerous doves, orioles, verdins and many other birds that nest on our place. Our cats never touch them.

Secret. Put a bell on your cat for a few months when young, then feed it well all its life. You'll have both cats and birds, the way we have. We happen to like 'em both.

—Weldon F. Heald
From Carling Conservation Digest

TOM TURKEY TESTS (Continued from Page 5)

wing contrary to accepted hunting procedure which consists of "calling" the turkey to the blind. The other hen was mistaken for an accompanying gobbler when the two birds approached the hunter's blind. The two adult hens weighed 11 pounds, 4 ounces and 10 pounds, 4 ounces. Each contained immature eggs, one 14 and the other 20. One crop was empty while the other contained 551 soybeans and miscellaneous insects.

More wildlife can be seen and heard the first two hours of daylight than can be observed during the balance of the day. Those who participated in the spring gobbler hunt apparently found this to be true. Analyzing the sample questionnaire it was found that approximately 187 gobblers had been observed, along with 100 hens and 115 turkeys of unknown sex. An amazing total of 749 gobblers were heard, but naturally many of these were duplicates. The hunters reported seeing 1,411 deer and great numbers of quail, rabbits, squirrels and grouse. Many sportsmen on Camp Pickett and Camp A. P. Hill had the thrilling opportunity of seeing and hearing the Iranian black-necked pheasants for the first time. For those who love the out-of-doors it was quite an experience at daybreak to hear turkeys gobbling, doves cooing, quail whistling, and pheasants crowing—all in the same territory.

Aside from the statistics and figures on kill, weights and hunting pressure, what else was learned as a result of a week's experimental gobbler season? Good information of both positive and negative nature was obtained while other facts could not be ascertained.

1. Effect on turkey populations. Naturally it is too early to determine what residual effects the hunting, shooting and human disturbance had on the wild turkey populations on the three areas this year or in future years. Many factors such as weather, predation and farming operations all have their effects on upland game nest successes. It would be extremely difficult to isolate reasons for success or failure of breeding seasons. We do know that two old hens were illegally killed on Camp Pickett, but it was not a sure bet that they both would have brought off young broods. It was interesting to note that not one turkey nest was discovered by any of the hunters on the three areas.

2. Time of experiment. There seems to be evidence that the season may inadvertently have been set too early. The majority of the hunters reported seeing numerous hens. In theory, a gobbler season should be set after the mating is finished and the hens are busy incubating her eggs, thus minimizing the possibilities of illegal hen kills. The first week of May would probably have been a better date, but who can tell for sure?

3. Length of hunting time. Troop training on Camp Pickett accidentally proved that it is not necessary to hunt until noon in order to harvest gobblers in the spring. A checking out time of 8 or 9 a.m. would have been more practical for the turkeys and hunters alike. As previously mentioned, most of the action occurs during the first two hours of the day.

4. Edibility of spring turkeys. Prior to the experiment one of the most common arguments against a spring gobbler season was that the tom at this time of year could not be eaten since he tasted like onions and his breast was spongy. In order to determine the true eating qualities of a spring bird each of the successful hunters on Camp Pickett was contacted. As this article went to press 11 answers had been received, and all 11 testified that the turkeys were just as good or better than fall birds. One answered, "Delicious, wish I had another one." Another reported. "Best turkey I have ever eaten, bar none."

5. Hunting pressure. Prior to the experiment there were numerous predictions and guesses as to the amount of hunting pressure that could be anticipated on the three controlled areas. For safety's sake, limits on hunters were placed on two of the areas in anticipation of large crowds. The season undoubtedly proved that since gobbler calling is a specialized sport, huge throngs of hunters should not be expected until more sportsmen learn the art of calling turkeys.

6. Attitude of hunters. Without the proverbial crystal ball it is impossible to forecast in advance the results of any experiment. Naturally the success or failure of the current test depended to a large extent upon the cooperation of participating hunters. After working for 14 years in the fall at hunters' check stations in all sections of Virginia, the writer was thoroughly unprepared for the reaction of the sportsmen on A. P. Hill and Pickett. Instead of complaints and criticism when checking out, the hunters had nothing but praise and appreciation for the opportunity of hunting gobblers in the spring. They were an enthusiastic group. Most of them lingered around the stations for hours to demonstrate their yelping abilities, to examine the trophy gobblers and to discuss the big ones that got away.

7. Recreation provided. It has been written many times but needs repetition here that "It is the responsibility of our agency to provide recreation to sportsmen and at the same time to safeguard wildlife populations for future generations." During the experimental gobbler season 1,446 hunter trips were provided to interested sportsmen. The number of gobblers collected is not significant here. The fact that practically all participating hunters observed and heard a great variety of wildlife is important. They were challenged to match their calling and stalking skills against the wise old gobblers. This represents 20th century outdoor recreation at its finest.

Conservation Commission Authorizes New Wildlife Refuge in North Carolina

Establishment of the Cedar Island National Wildlife Refuge in Cartaret County, North Carolina, was approved by the Migratory Bird Conservation Commission at its meeting on June 13, the Department of the Interior has reported. The authorized acreage is 16,214. Acquisition will be financed from duck stamp revenue when and as the various properties are secured.

The Cedar Island refuge was selected for its great potential as a waterfowl area. Development will be concerned with the conversion of vast areas of needlerush to more productive marsh and aquatic vegetation. The developed refuge will provide protection and improved habitat for puddle ducks, diving ducks and Canada geese. It will also be a demonstration area to develop management techniques which will be useful in managing similar types of private and public marsh areas.

VIRGINIA WILDLIFE ☆ ☆ ☆ ☆

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

PUBLIC FISHING EXPERIMENT UNDERWAY AT FRONT ROYAL FISH HATCHERY. Fishermen are invited to try their luck on a few of the ponds at the Virginia Game Commission's Front Royal fish hatchery. Eight of the 28 bass-bluegill ponds at the northern Virginia hatchery have been open since July 10 to conventional fishing and two others are open to the "fish for fun" anglers using artificial lures and barbless hooks. This is an experimental program to be continued over a three-year period to determine the necessity for a size limit on largemouth bass in bass-bluegill ponds. Also, fish biologists want to observe any excessive mortality resulting from the catching and releasing of undersized bass.

Four of the ponds for conventional fishing have a minimum size limit on bass of 14 inches, while the other four have no size limit. Creel limits on these ponds conform with statewide regulations. One "fish for fun" pond has been stocked with largemouth bass and bluegills, the other with smallmouth bass and redbreast sunfish. All fish taken from the two "fish for fun" ponds must be returned to the ponds immediately. A complete record is being kept by a creel clerk of the number of people who fish, the number of hours fished, and the number, weight and species of fish caught.

Fishing hours at the hatchery are Tuesday through Friday from 8 a. m. to 4 p. m.; Saturday, 8 a. m. to 8 p. m.; Sunday, 1 p. m. to 8 p. m. The hatchery is located on Route 678 one mile south of Waterlick, which is midway between Front Royal and Strasburg on Route 55. Either a Warren County fishing license or a state fishing license is required to fish these fish hatchery ponds.

ANOTHER GOOD DEER HARVEST PREDICTED FOR VIRGINIA. Although Virginia's 1961-62 deer kill may not beat last season's record kill of 36,165, it will still be a good harvest, predicts state game research biologist Jack Gwynn. "We estimate that we had about 208,000 deer in Virginia after last hunting season. Additional losses of all kinds probably reduced that number somewhat more over the winter. Normal reproduction will increase the herd to about 258,000 by hunting season," Gwynn explained.

RAIL SEASON DATES ANNOUNCED. First migratory game bird season to open in Virginia this fall will be the season on rails and gallinules, set by the Game Commission to open on September 1 and run through October 31. Daily bag limits: 25 soras, 15 other rails and gallinules; hours: sunrise to sunset E.S.T.

GAME COMMISSION LOSES ASSOCIATE EDITOR, HIRES ENGINEER. George Harrison, information officer for the Commission of Game and Inland Fisheries, has resigned to accept a position as editor of Pennsylvania Game News, a monthly publication of the Pennsylvania Game Commission. He will assume his new duties at Harrisburg, Pennsylvania, on September 1. Harrison has been with the Virginia commission for three years, working first as a wildlife information specialist, then as an assistant photographer in the audio-visual section and assistant information officer. On June 5, he was named information officer and associate editor of Virginia Wildlife.

Commission officials also announced the appointment of George Holladay, a native of Orange County, Virginia, as staff engineer. He is in charge now of preparing plans and specifications for fish ponds, boat ramps, access roads and similar engineering jobs for the Commission. He formerly worked as sanitary engineer with the State Water Control Board.

Eager anticipation can hardly keep a seven-year-old from bubbling over with excitement. "Gee, pop—we're here!"

A buck borrowed from pop (on a long-term loan) begets a boat from the man that rents 'em. (Gosh! How important can you feel?)

Sobs of frus
restrained wh
born

First Fis

Text and Ph

Now, then—let's bait our own hook and get on with it.

THE BREAK between "mama's boy" and "father's boy" begins with the first fishing trip. From then on, with slight lapses back into babyhood, a young man of seven leaves dolls and such behind and becomes—a fisherman.

Like father, like son; and as pop did as a small boy, so does his son. Striving for independence, but still reliant on father, he is a chip off the old block.

OH, BOY—
the line cat

No whining now, you mustn't catch cold—

Wake up, son—get on your feet!

are manfully
-ling a stub-
line.

Rowing in circles on a boy-sized lake means mastering a new skill. The boat seems big and the lake even larger, but never mind—we've got all day!

Refueling is necessary after so much rowing exercise. To Richie, eating is just as important as fishing and, besides, sandwiches taste wonderful in the middle of a lake.

ing Trip

Eric Wahleen

!! (Or did
he bottom?)

Memories are in the making on that first fishing trip. Lakes seem larger, bites are bigger, and boats and bait are new and exciting.

Retrospection in later years, though glossed over by exaggeration and dimmed in detail, won't diminish the tales of that first fishing trip.

Ah—those were the days! Twenty years from now seven-year-old Richie will go through the same procedure with his own son.

There's more than one way to cool off on a hot day—

A sleepy fisherman shrinks back to just a little boy.

And so homeward bound in a happy fog. Memories will dim the fact that nary a fish was caught.

Descriptions and Life Histories of

Virginia's Game Fishes

By ROBERT G. MARTIN
Chief, Fish Division

THE Virginia game, inland fish and dog code defines this state's game fish as brook, rainbow and brown trout, all of the sunfish family including largemouth bass, smallmouth bass, spotted bass, rock bass, bluegill, and crappie, and walleyed pike and white bass. The appearance and habits of all these fish plus the chain pickerel, striped bass and several other species of importance in Virginia's freshwater sport fishery are covered briefly here.

Cold Water Fish

Brook Trout (*Salvelinus fontinalis*)
Rainbow Trout (*Salmo gairdneri*)
Brown Trout (*Salmo trutta*)

All three trout species found in Virginia waters are highly sought-after game fishes. Only the brook trout is native to Virginia. Rainbow trout were originally found in Rocky Mountain streams and brown trout were imported from Europe. The presence of highly colored scales and a small fatty fin-shaped lobe on the back behind the dorsal fin distinguishes members of the trout family from other Virginia freshwater fishes.

Vivid white edges on the lower fins separate the brook trout from other trout species. The belly is usually orange, turning a brilliant red in breeding season. Sides are speckled with red, gray or yellow spots enclosed with blue circles.

Browns resemble brooks somewhat, but the white edges on the lower fins are lacking on brownies and the spots on the sides of the brown trout are larger and usually black or orange with a paler border. The sides and belly of the brown trout take on a yellowish hue with maturity.

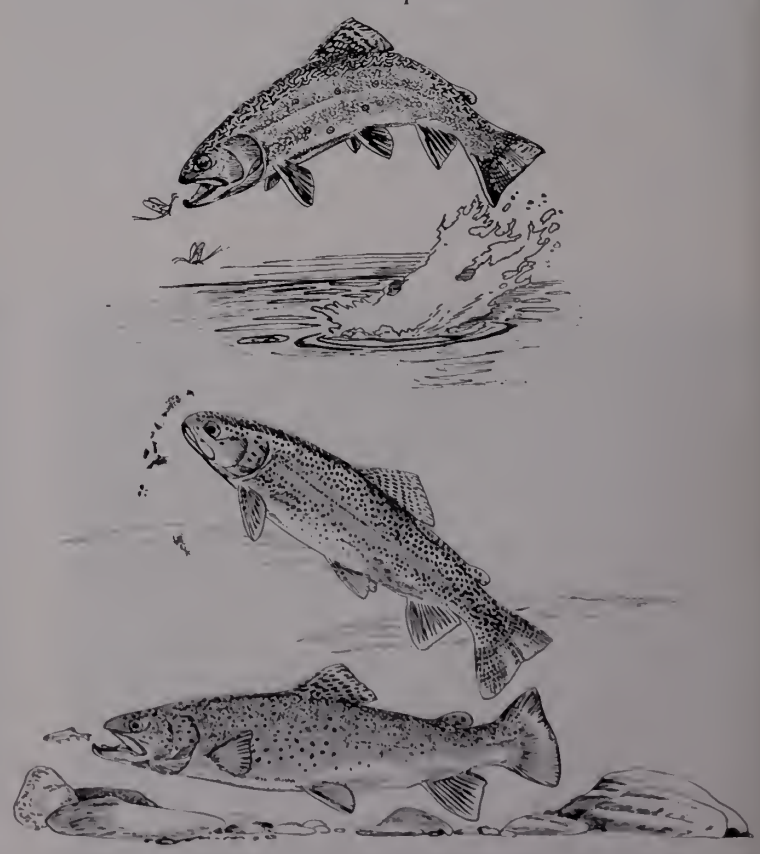
The most conspicuous marking on rainbow trout is the horizontal pink stripe on their sides which turns bright red during breeding season. Sides, back and fins are peppered with tiny black spots.

Trout require a constant supply of cold, clear, well aerated water for the establishment of self-sustaining, thriving populations. All prefer summer water temperatures below 65 degrees and can seldom survive temperatures greater than 75 degrees for more than brief periods.

The native brook trout is by far the most widely distributed species in Virginia and is apparently well adapted to the soft, moderately acid waters which characterize most of Virginia's trout range. The introduced rainbow shows some preference for limestone streams but is often found in the same waters with brook trout. Brown trout have been introduced only recently, but experience elsewhere indicates it can be expected to thrive in the same waters as brook and rainbow trout. While all three species can tolerate more adverse environmental conditions when stocked as adults for put-and-take stocking programs, there is some indication that brown trout will thrive better than the other species in the lower and more turbid reaches of trout streams.

Young trout of all three species feed almost entirely on aquatic insects and other small invertebrates. Brook trout remain basically insect feeders throughout life. Rainbow and brown trout include minnows and small fish of any available species, including trout, in their diet after their first year. Large brown trout, particularly, feed heavily on fish when available. This ability to utilize minnows and other fish for food enables the brown trout to utilize the larger, downstream sections of trout stream better than brooks or rainbows. Native brook trout reach 18 inches in length occasionally, but a nine-inch brookie (six ounces) is considered better than average in Virginia waters. Six- to 10-pound rainbow trout have been creeled occasionally in Virginia, and it is hoped that recent plantings of brown trout will provide more larger trout in future years.

Only the headwater sections of mountain streams meet the exacting habitat requirements for spawning and establishment of self-sustaining trout populations. Since the vast majority of these streams are small, averaging less than 20 feet in width, the potential production of natural trout is not sufficient to meet the demands of the angling public. Watershed and stream improvement practices offer some promise of increasing the carrying capacity of existing native trout streams. To further augment the supply of naturally produced fish, the Commission annually stocks catchable size trout in the better public trout waters. The number and size of trout produced is limited by revenues generated by trout license sales. These stocked fish are readily caught, and management measures to date have been directed towards refining stocking techniques to extend the fishing season and provide more sport from the number of fish available. Such measures which have proven successful include



Cold water fish (from top): brook trout, rainbow trout, brown trout.

Cool water fish: (top row, from left) redbreast sunfish, smallmouth bass; (bottom row, from left) rock bass, walleye.

in-season stocking and establishment of artificial lure-only streams and "fish for fun" areas.

Over 160 public streams in 40 counties are stocked annually by the Commission of Game and Inland Fisheries and the U. S. Fish and Wildlife Service. In addition, there are many native trout streams on the Shenandoah National Park and Blue Ridge Parkway which are not stocked but provide public fishing.

Some of the larger and more important trout streams include the Rapidan River (fish-for-fun only) in Madison County, Bullpasture River in Highland County, Jackson River in Bath and Alleghany Counties, Tye River in Nelson County, Smith River in Henry County, Dan River in Patrick County, Big Stony Creek in Giles County, South Fork Holston River in Smyth County and White Top Laurel River in Washington County.

Cool Water Fish

Smallmouth Bass (*Micropterus dolomieui*)
Spotted Bass (*Micropterus punctulatus*)

Smallmouth bass, rock bass and redbreast sunfish are all members of the sunfish family, and the walleye is the largest member of the perch family found in Virginia. Members of the sunfish family possess both spiny and soft rays in a single dorsal fin. The perch family has two distinct dorsal fins, a spiny rayed fin forward followed by a separate soft rayed fin. These prized sport fishes all are found in the clear, cool, swift flowing streams of the upper piedmont and the mountain foothills. These streams are intermediate in character between typical mountain trout waters and the larger, warmer and more sluggish streams of the lower piedmont and coastal plains. Local populations may occur also at the so called "fall line" between the piedmont and coastal plain where the steep gradient, swift currents, and rocky bottoms duplicate stream conditions found at higher elevations.

Since the smallmouth range overlaps that of the largemouth bass in the lower stream sections, fishermen are prone to confuse them at times. The upper jaw of the smallmouth does not extend past the middle of the eye as is the case with the largemouth, and it lacks the horizontal black stripe which is to be seen along the side of the largemouth bass. Also, the body coloration of the smallmouth is tinted with definite golden or olive overtones as compared with the more greenish hue of the largemouth.

The spotted bass, found only in the New River drainage in Virginia, is often confused with both smallmouth and largemouth bass. This species has a mouth similar to the smallmouth and the horizontal stripe and general body coloration of a largemouth bass. The presence of a pronounced rough spot on the tongue of the spotted bass, appearing as a black patch, helps distinguish this species.

Food of the smallmouth consists chiefly of minnows and small fish. Crayfish and insects are taken readily when available. As with other members of the sunfish family, the male is entrusted with preparing the nest and guarding the eggs. The nest consists of a carefully fanned out, circular depression in a protected gravel bed. Nesting and spawning activity begins in the spring at water temperatures of approximately 62 to 70 degrees. Smallmouth bass share the high reproduction potential common to other members of the sunfish family. They usually produce far more young than the habitat will support to maturity.

While a few smallmouth bass exceeding six pounds are occasionally creeled, a four-pounder may be considered a trophy fish in Virginia. The Shenandoah River is perhaps the best known smallmouth bass stream in the state. Other excellent streams include sections of the James, New and Rappahannock rivers. Fishing is unexpectedly good at streams entering the "fall line" such as in the James River near Richmond, the Rappahannock near Fredericksburg and the Nottoway River near Franklin in Southampton county. Claytor Lake in Pulaski County is the only impoundment containing a substantial smallmouth bass population.

Rock Bass (*Ambloplites rupestris*)

Rock bass, or redeye, as they are known locally, are usually found side by side with smallmouth bass and redbreast sunfish in the smaller bass streams. They are less abundant in larger streams. It is the only member of the sunfish family which has the combination of 11 spines in

the dorsal fin and six spines in the anal fin. Bronze and black mottling on the sides, a large mouth and the red eye complete its descriptive characters. It is sometimes confused with another member of the sunfish family, the warmouth, which occurs in slow moving streams or ponds. but the warmouth has but three spines in the anal fin. Crayfish, insects and other small aquatic organisms make up the bulk of its diet. Larger individuals feed heavily on small fish.

Three closely related forms of the rock bass have been identified in Virginia. The most abundant and widely distributed form is the northern which is found in the James, New and Shenandoah river drainages. Individuals seldom exceed a weight of one pound. and a 10-inch, one-half pound specimen is considered large by most anglers. The southern, found chiefly in the Nottoway river. has produced individuals in the two-pound class, and a rare form occurring only in streams in the Roanoke River drainage has been reported to exceed three pounds.

Redbreast Sunfish (*Lepomis auritus*)

One of the most beautiful of all pan fishes, the redbreast sunfish is popular with anglers of all age groups. The breast and throat of the males change from yellow to a brilliant red, as their name implies, during the breeding season. The presence of an extremely long black earflap narrowly bordered with scarlet separates this species from other members of the sunfish family.

In addition to its usual association with smallmouth bass habitat, it is often found in clear, sandy bottom streams in the coastal plain. It cannot tolerate extremely acid, slow moving or muddy bottom streams and adapts poorly to impoundment.

It feeds principally on insects and other small aquatic organisms. Four to six ounces is the average weight of most redbreasts creeled. Some reach eight ounces and occasionally one will exceed one pound.

Walleye (*Stizostedion vitreum*)

A mouth full of sharp canine teeth, two distinct dorsal fins, and a voracious appetite distinguish the walleye from other Virginia fishes. In contrast with the elaborate nest-building habits of the sunfish family, the walleye ascends the major rivers of its drainage in early spring and scatters its eggs over the gravel stream bottom in shallow water. After spawning the fishes return to deep water and do not tend eggs or young. The effect of this lack of parental care is minimized to some extent by the vast number of eggs deposited. A 10-pound female, for example, will produce between 250,000 and 500,000 eggs. Primarily a fish eater, the walleye also takes larger aquatic insects, frogs and crayfish when available. This highly desirable game fish is found in greatest abundance in the New River drainage. Claytor Lake in Pulaski County is particularly noted for its excellent walleye fishing. Walleyes are also found in the lower reaches of the Roanoke, Nottoway and Potomac River drainages.

The average fish creeled weighs between two and three pounds, with an occasional eight to 12-pounder being taken. Fifteen pounds is the Virginia record.

Warm Water Fish

Fish in this group provide more fresh water fishing opportunity than all the other species combined. Some or all of these species may be found in every county in the state. Their preferred habitat is in warm slow-moving streams, millponds, and reservoirs. As a group these species are not as exacting in their habitat requirements as trout or smallmouth bass and are much more adaptable to habitat changes. However, they will not tolerate pollution or excessive silt.

Contrary to our experience with trout and smallmouth bass waters, the habitat for warm water fishes has increased substantially during the past 20 years. This increase is due to the creation of large hydroelectric and flood control reservoirs, municipal water supply reservoirs and thousands of farm ponds. Large impoundments with a total of over 60,000 surface acres have been constructed during this period, and an additional 40,000 acres are scheduled for creation during the next three years. Farm ponds have added an additional 30,000 acres.

In addition to a vast advantage in the amount of water available, the bulk of the habitat suitable for warm water fishes is much more fertile than that suitable for trout. This combination of greater habitat availability and fertility make substantial differences in management techniques used for warm water fishes as compared with those used for trout. The limited and infertile trout habitat requires stocking of adult fish to satisfy heavy fishing pressure, while the natural fertility and the high reproductive potential associated with warm water fishes is usually sufficient to provide continuing harvest of naturally produced fishes without stocking. In fact, overproduction and stunting of pan fish species is often the case, and poisoning, draining and seining of overpopulated populations is prescribed to reduce their numbers commensurate with carrying capacity. Research from many waters and under differing conditions has conclusively proved that stocking bass and bluegill in waters already containing these species is a waste of time and money unless substantial changes are made in the habitat.

Largemouth Bass (*Micropterus salmoides*)

The largemouth bass is one of the best-known game fish in Virginia. It may be identified by the prominent stripe down its side and by its large mouth, with the upper jaw extending at least to the back edge of its eye. It is greenish above, lighter on the sides and white on the belly. Food and reproductive habits are almost identical with those of the smallmouth bass. The largest largemouth bass reported from Virginia was taken from Philpott Reservoir in 1961 and weighed slightly over 15 pounds. Most of the bass creeled average less than two pounds, with fish over five pounds considered trophies by most fishermen. Back Bay in Princess Anne County undoubtedly provides the best bass fishing in the state. Philpott Reservoir, Kerr Reservoir and the Chickahominy River also provide excellent largemouth fishing.

Chain Pickerel (*Esox niger*)

The chain pickerel, or pike, as it is known locally, is easily identified by its mouthful of sharp teeth, single dorsal fin inserted far back on the body, small scales and the chain-like pattern on its dark green sides. Often criticized for its highly predatory feeding habits, it nevertheless performs a necessary function in its habitat by keeping down the numbers of forage and pan fish so that they grow rapidly and attain a size attractive to fishermen. It spawns in early spring, depositing its eggs over submerged aquatic vegetation, and quickly abandons the spawning area. Vegetation is essential for successful reproduction. Any eggs which fall directly on the stream or pond bottom suffocate. While it is most abundant in mill ponds and weedy shallow streams of

Warm water fish: (top row, from left) chain pickerel, black crappie, warmouth; (bottom row, from left) largemouth bass, bluegill.

the coastal plain area, it may also be found with trout or smallmouth bass in a few clear, heavily vegetated spring fed streams and ponds in the mountains. This species is seldom found in large impoundments, and the best fishing is provided in old mill ponds and streams in the coastal plain area of the state. One to two pounds is average and over five pounds a rarity.

Bluegill (*Lepomis macrochirus*)

Bluegill, or bream, as this species is often loosely identified, is without doubt the most abundant and widely distributed pan fish in Virginia. It probably varies in color more than any other sunfish, ranging from blue-black in heavily stained swamp waters to a light greenish blue in other situations. The male is always darker than the female and boasts a dark orange or mahogany colored throat in breeding season, while the throat of the female is always a dull yellow. The ear flap is solid black on both sexes.

Bluegill feed largely on small insects and other small aquatic organisms. Occasionally stomachs contain a considerable amount of aquatic plant materials. As with other members of the sunfish family, the male prepares the nest and tends the eggs. Its high reproductive ability is often its undoing. If unchecked by predacious fish such as bass and pickerel, it will quickly outstrip its food supply to the point where there is not sufficient food to maintain adequate growth. Stunted bluegill, four to five inches in length and as many years old, are common in improperly managed ponds. This situation can be corrected only by measures designed to materially reduce the numbers present. Best fishing for this species may be found in well-managed farm ponds and small impoundments. Fishing for this species is seldom good in large reservoirs with fluctuating water levels. A five-ounce bluegill is considered adequate by most fishermen. Some ponds produce larger fish, and weights up to two and a half pounds have been recorded in Virginia.

Black Crappie (*Pomoxis nigromaculatus*)
White Crappie (*Pomoxis annularis*)

The black crappie, another member of the sunfish family, is one of the most popular pan fishes in the state. Sides are silvery with irregularly spaced black spots; throat and forepart of belly are dusky or slate colored. The front portion of the dorsal fin has either seven or eight spines, distinguishing it from its relative, the white crappie, which has six.

Most abundant in coastal plain streams and mill ponds where its tolerance of acid swamp waters makes it a particularly important species, it may also be found in impounded waters statewide. It thrives best in relatively large ponds, reservoirs and slow-moving streams. The less acid-tolerant white crappie is found along with the black in piedmont and western Virginia impoundments. Breeding and food habits are similar for both species. Aquatic insects and their larvae comprise the bulk of their diet until they reach approximately nine inches when they start feeding on small fish. They remain insect feeders throughout their life span, but rely more on small fish as they get older and larger. Spawning time is in the spring, a few days before that of the largemouth bass. The males construct a nest as with other sunfish species, or sometimes will induce the female to spawn on root masses located in shallow water.

Fishing concessionaires in large impoundments regard the crappie as the "money crop" because this species usually accounts for over 50 percent of the fish creeled in such waters. The average fish creeled weighs less than one-half pound, but in particularly good waters ¾- to one-pound fish are common. The largest black crappie reported in Virginia tipped the scales at more than four pounds.

Buggs Island Reservoir, Claytor Lake, Lake Drummond, South Holston Reservoir, North Landing River, and the lower sections of the Rappahannock, Potomac and Nottoway rivers are recommended angling hot spots.

(Continued next month)

Educating People for Outdoor Recreation

By GEORGE D. STODDARD, *Chancellor*
New York University

Commission Photo by Kesteloo

"The most casual picnic (or hunting trip) may restore to children a sense of *belonging*."

As Dr. Jay B. Nash eloquently proclaims, recreation is not loafing. To "lie fallow," implies that one's efforts subsequently will be intensified. While recreation involves a change of place, of the type of activity, and of one's attitude, in these sedentary days the energy requirements may be greater for recreation than for work.

Education will grow dull and unrewarding unless it helps to prepare a person to enjoy the solitude and the beauty of natural surroundings. This does not mean that we expect children, youth, or adults to become hermits, for hermits are distinguished more by their fear of mankind than by their love of nature. Nor is it a matter of escape. There is a desire, on occasion, to get back to the basic demands of a physiological-psychological organism that combines thought and action. Perhaps outdoor life could be regarded as an escape from *wordiness*—as a healthy resistance to the false notion that everything of value can be heard in speech or read from the printed page.

In a straight line of philosophical development from James to Dewey to the contemporary observers of the educational scene, we sense that neither thinking nor doing taken separately can form the whole man. We learn by thinking about what we are doing. Accordingly we deplore any tendency to regard a child or an adult solely as a talking, sitting, problem-solving animal. Beyond words there is a life experience that words may evoke but for which they are themselves a poor substitute. In this sense outdoor recreation, conceived as a maturing set of responses and achievements away from closed-in spaces (and preferably away from crowds) may, like music and art, offer unique opportunities for personal growth.

Adapted from a paper presented at the Conference of State Inter-Agency Committees on Recreation, Bear Mountain, New York, May 23, 1961.

Outdoors we are more likely to remember that man, a glorious animal, is still an animal. Under a heavy veneer of culture, he responds to differentials in food, digestion, exercise, and disease resistance—to organic fitness, if you will—in a world that is highly artificial. In the past, plague and hunger brought him close to annihilation. In the future, the deadliness is not there, nor in old-style killing; it is in new-style radiation that can poison the very air we breathe. If my remarks were to focus upon the adult population, they would be somewhat gloomy. Having gone from good specimens of animals—as a naturalist would rate them—to rather weak, pale, unexercised, dependent creatures—all in order to achieve the higher virtues of speech, history, and technology—man is now, through notable defects in social and spiritual quality, in danger of losing this new life. If he does lose what has been painfully built up in the last ten thousand years, he will become at once a poor brute and a pitiable personality. Unable to return to the caves and the woods, where he would starve, he would, I suppose, clutter up the roads that lead to mass institutional care.

In the hope that such an outcome may be prevented, let us consider the needs of young persons. Let us see what we can do to help the next generation gain that age-old harmony with nature, with the outdoors, that is no by-product of a political system, but is, in fact, a basic condition of well-being, especially in the over-protected life of the town or city.

It will take more than outdoor recreation and education in one's formative years to prevent such unhappy outcomes. It will take more, but it may not take less, for the outdoors contributes markedly to three human needs:

(1) A sense of reality that serves to integrate the planes of the physical and the abstract.

(2) A sense of oneness with nature that leads to what

Schweitzer calls a "reverence for life," together with a small armament of skills and virtues that reduce helplessness under simple outdoor conditions.

(3) A sense of belonging, of being wanted *as a person.*

It is well known that words, phrases, and logical systems tend to take on a life of their own. The science of general semantics is devoted to a study of this phenomenon. For example, persons build word-structures to depict their own essential roles, sometimes entering so whole-mindedly into a role as to shut out other persons along with the real world that can be checked by others. Now this is harder to do in the relatively wordless world of the outdoors. There, skills, insights, and achievements cannot be "dreamed up" or faked. You swim or you sink—or, perhaps, just holler for help. The skills are individual and personal, but they are not private; they get measured and compared. There is a certain earthiness to those who have an unusual grasp of the world of nature.

Most of us are a long way from all that; we rarely "commune with nature." We listen too much to others and to ourselves; at times we use words to the detriment of understanding. To seek the meanings that lie beneath the rhetoric, we should go back, whenever we can, to the three-dimensional, nonmagical world of muscles, organs, and sensory perceptions. That is why outdoor life, the life of the trail and the camp, so stirs people; it is a healthy return—if only for a brief time and under simulated conditions—to a life the whole race of man once knew. Man knew it so intimately that much of his inherited physique and neural structure is shaped accordingly.

Commission Photo by Harrison

"Out-of-school learning carries a responsibility equal to the school's for learning, adjustment and creative effort." Here, James City County Agent Mel Bryant (at right) and former Game Commission Wildlife Education Specialist George Harvey explain a waterfowl refuge to members of the Norge 4-H Club.

Of course it is not enough to sit on a pumpkin by some newly found Walden Pond, to lie sunning by the sea ignorant of all natural forces, to walk unknowingly through woods under a scarcely noticed pattern of stars. There are wonderfully beautiful forms in nature, from the microscopic to the galactic, and the way to sense this is to combine reading, writing and visual aids with direct observation. Hence, I part company with those few outdoor enthusiasts who derogate the academic—abstract science, for example—in order to reserve their outdoor muscular tone. Why the *either-or?* It is far better to study and search and compare, to try all manner of theories, and at the same time to enjoy the outdoor life on a lane of personal experience. To do this it is unnecessary to become scientists, but it is good to know something of their findings.

I have said that outdoor experience is really an ingredient of the intellectual process. I should now add that at its best it is also a preventive of maladjustment. To live in a crowded city is to be impressed, day after day, with the ineffectiveness or positive harmfulness of the out-of-school environment. By this I do not mean that the in-school environment is appropriate either, but that is not my present topic. Few parks can meet the minimum requirements for meditation, nature study, or organized play. As for the streets, I have yet to observe one that deserves an "A" rating as a place for childhood activities. Parents and children must reach out to faraway fields. With luck they find fields that are truly greener and more hospitable to family needs. Such expeditions, even of short duration, add a new dimension to all who are fortunate enough to get away. The most casual picnic may restore to children a sense of *belonging.* In our sophisticated world, there is no need to stress the importance of this yearning, especially for the child maturing into adolescence. The problem is how to fit the means to the end. For the rejected child—and most children *feel* rejected at one time or another—the solid answer is to take active counter measures. Frequently this calls for group planning. Thus in camp life that calls for teamwork away from home, the child, paradoxically, is made to feel at home. There may be a clearer statement of values than parents could formulate, as in the Scout oath. There is sure to be a redistribution of talents.

All this is educational in my opinion; there is no need to quibble about terms. But it is not educational simply because boys and girls like it. *It is educational only if the experience is progressively structured into an intellectual whole that is perceived by the participant.* Otherwise we have only a pleasant surface phenomenon, like a winning bet on a horse race. Pleasure without growth is self-defeating. Curiosity, insight, and achievement are what we encourage, indoors or outdoors.

If in the early habit-forming ages of children there is no acquaintance with outdoor recreation, it is difficult to make up for this in later years. In fact, there may be a pattern of nonparticipation or of distaste that carries down through generations. The fault may lie in the low social value assigned to such activities. Some school systems, for example, provide excellent outdoor recreation and education, but they are outnumbered by those that have made little headway. On a grand scale for tens of millions of people, a proper attention to outdoor life will call for finances, natural resources, and plans far beyond the scope of a single family or neighborhood.

In the schools, nothing much will happen unless curriculum makers, administrators, school boards, and state authorities are convinced that out-of-school learning, which encompasses one half the calendar year and almost one half the child's waking day in the school term, carries a responsibility equal to the school's for learning, adjustment, and creative effort. Then the deed will follow the thought and the conviction; then we will not be forever in a posture of defense as we mine the rich ore of recreation and education. If we neglect this task in any of its forms—theory, finance, or practical execution—we shall be charged with having cherished everything in our culture except its greatest treasure, which is the growing child.

Commission Photo by Kesteloo

U. S. Forest Service personnel cooperate with the Virginia Game Commission by leaving valuable den trees and food producing trees for wildlife while marking other trees for cutting on Virginia's national forests.

Principles of Game Management

Part Five:

Habitat Restoration

By JOHN MADSON and ED KOZICKY

Olin Mathieson Chemical Corporation

THE MOST basic of modern game management methods—and the one that comes nearest to being a "cure-all" for dwindling wildlife—is game habitat restoration.

Game habitat is the complex of soil, water and plants, commonly called "cover," in which game birds and mammals exist. It is the "life range" that must include escape cover, winter cover, food and water, cover to rear young, and even cover to play. A lack of one or more of these cover requirements must be corrected if the habitat is to support game in harvestable numbers.

The condition of the soil and its plant covering determines the wildlife yield of any area. Although this concept has been extolled many times in the past quarter-century, it is not yet widely appreciated. To the average hunter, the bulldozing of a brushy fence-row will always lack the spectacular drama of a Cooper's hawk striking a covey of quail. However, the loss to the hawk is temporary; the loss to the bulldozer is permanent.

Generally, the increased habitat requirements of modern man have worked to decrease the available game habitat and the quantity of most American game species. Man has profoundly changed the types and distribution of game food and cover and has generally destroyed, created, or shifted the tenable habitats of game species.

The classic example of this is the Missouri prairie chicken. Originally, much of northern Missouri was prime habitat for this grouse, but as the land was plowed and put to grain, the prairie habitat—and the prairie chicken—swiftly vanished. The birds disappeared first from the most fertile soils and then, with advancing land use, from many second-rate soils. Today's remnant prairie chicken population is found in the poorest parts of the original range and none of these grouse remains on the best Missouri soils, where they have been dispossessed by man.

Game habitat is dynamic. Cover conditions constantly change, and these changes influence the quantity and distribution of game. The most important of these changes is plant succession, as demonstrated by the evolution of a grassy field into brushland. Game management attempts to direct plant succession in the right direction at the right time and place. Planting, fencing and fire protection advance the plant succession; cow, axe, plow and fire reverse it.

The most important single tenet of game management is that if there is any breeding stock at all, the only thing that we can do to raise a game crop is to create a favorable habitat. Population pressure guarantees a rapid spread of a game species to all accessible range—if that range fills the species' needs. For example, on Protection Island in Oregon where eight pheasants—six hens and two cocks—were liberated in the spring of 1937, an inventory in the fall of 1941 revealed more than 1,500 pheasants.

There are several great deterrents to widespread habitat restoration on private lands:

1. Cost of initiation and maintenance of habitat.
2. Lack of immediate results.
3. Limited knowledge of habitat requirements of many game species.

The high cost of effective game habitat improvement usually discourages extensive private projects. Quail habitat projects on large southern plantations may result in fall population densities of one bird per acre, but the cost may be as much as $50 per quail, and has been known to exceed $1,500 for each quail harvested. This high initial price is only part of the expense, for plant succession inevitably takes place and maintenance is required to sustain a habitat type.

Habitat restoration programs may require five years or more to produce marked increases in local game supplies. In addition to this, game production may be curtailed by adverse weather conditions during spring and summer. And so, since it is an American trait to want immediate results, such short-run game management techniques as stocking and predator control are most warmly embraced by the average sportsman.

But although habitat improvement is the most important single game management principle, we have much to learn of game physiology and the social tolerances of wildlife. The more we know of the life history and habitat requirements of a game animal, the more efficiently we can manage this species. Much basic research on game and habitat requirements is still needed.

Game habitat restoration can never succeed on a broad scale it if conflicts with agricultural interests. If, however, habitat restoration is conducted concurrently with farm improvement programs, it can be an effective and economical way of increasing farm game supplies. A multiflora rose hedge, for example, is both wildlife cover and windbreak; such a living fence is a cheap way of confining cattle and providing a travel lane between a source of food and escape cover.

In short, the future supplies of farm game depend on the economical development of acceptable game management practices that are compatible with modern agriculture.

Bird of the Month:

The English Sparrow

By DR. J. J. MURRAY
Lexington, Virginia

NOBODY seems to like an English sparrow. Perhaps the time has come to revise to some extent our thoughts about this little gamin of the streets. Our prejudices go back to a past generation when the birds were so abundant about the stables. They were known to be interlopers; they were omnipresent; they ate a lot of our grain; they were felt to be common and vulgar little birds. They have now settled down, however, to more reasonable numbers. With the passing of stables in town the flocks are much smaller.

Now that the situation is so different there are things to be said for the English sparrow. They do not seriously compete with any of our own American birds. As gamins they at least render a public service as scavengers of the streets. But for them in the crowded centers of our cities there would be no birds. English sparrows are at least better than no sparrows.

These little birds are well fitted for survival. They can live almost anywhere; they can eat almost anything. Their favorite places, both for feeding and for playing, are stable yards in the country and the gutters in town. They have adapted themselves to the automobile age. I have often watched them picking toasted insects from the radiators of parked cars. Like slum children, they know how to take care of themselves. Even the alley cats who share the streets with them do not often catch one. Its voice suits its environment. It is a harsh "cheerp," loud enough to be heard above the street noises.

When he is clean, which is not too often, the male English sparrow is quite a handsome bird. The cap is gray; the throat and upper breast is black; the wings are touched with chestnut and white. The female and the young are dull.

The nest is an unsightly pile of rubbish, tucked into a hole under the eaves of a building or into any crevice that is large enough. This seems to be the one count against them that is more than prejudice. The nests are not only unsightly but may become fire hazards. A favorite nesting place is in the dense growths of ivy on brick buildings. Nesting begins early and continues late. In Lexington, I have seen the birds carrying nesting material as early as the first day of February and as late as the second of November. Consequently the birds may raise several broods in a season—large broods, too, of five or more young.

The history of the English sparrow in the United States is like that of a later comer, the starling. The birds were first introduced without success in 1850, and then with entirely too much success in 1852 and later years. After a slow start the birds spread all over the East in a few years, finally reaching the Pacific coast in the Northwest in 1889. Its spread was much more rapid than that of the starling, which was brought in about 40 years later, probably because of the fact that the sparrow is primarily a grain eater and was thus carried across the country in cattle trains.

Whatever allowances may now be made for the English sparrow, it was a mistake to bring it into America. It serves as a warning against the introduction of foreign species without very careful consideration of the niche the species is supposed to fill and of the dangers that may be involved in giving it a place in America.

Jeter Class Takes Izaak Walton Tour

Eighth grade students of Covington's Jeter School were the guests of the Alleghany Chapter of the Izaak Walton League of America on a conducted tour, Saturday, May 27, through a section of Alleghany County.

Two school buses filled with students were taken over the scenic route of Peter's Mountain down to Boiling Springs and back to Covington. At each stop Leon Powell of the U. S. Forest Service's Fire Control Office at Covington explained the uses of ponds, fire towers and the policies of the U. S. Forest Service as related to timber, wildlife, recreation and water. He was assisted by F. W. Hanks, state game warden in Alleghany County. The tour started at 9:30 a.m. and ended at 2 p.m.

Faculty members accompanying the class were Mrs. Laura Maynard and Mrs. H. E. Adams. Richard F. Beirne, III, represented the Izaak Walton League.

Lee County Sportsmen Sponsor Fish Rodeo

The S.W.V. Sportsman's Club of Lee County sponsored an annual Kid's Fishing Rodeo on May 13 at Lester Bailey's Pond at Dryden. The rodeo was open to all youngsters under 16 years of age. Contestants were divided into three age groups for awarding prizes.

The pond is stocked with bluegills and bass.

Free Wildlife List

Wouldn't you like to have a list of all the mammals, birds, reptiles and amphibians in Virginia?

It's yours, free of charge, if you request publication B-1 from the Information Section, Commission of Game and Inland Fisheries, Box 1642, Richmond 13, Virginia.

Other free publications available from this source include a list of Virginia fishes (B-2), reprints describing Virginia's game birds and game mammals (C-1 and C-2), and a full-color reprint showing a typical stream food chain complete with rainbow trout (G-2).

Insect Zoo

An insect zoo is something that is easy to build and lots of fun to keep. You can be both the zoo keeper and zoo collector.

Commission Photo by Kesteloo
Praying Mantis

Cages can be made from glass jars, shoe boxes or similar materials. Clear plastic film will allow zoo visitors to see the insects contained in the boxes.

"Hunting expeditions" can be made into neighborhood gardens or nearby farms to obtain specimens.

The insect zoo will show the zoo keeper how each insect eats and which ones are harmful and helpful to the gardener.

Some of the interesting insects for the zoo are the dinosaur-like praying mantis, the grasshopper, golden garden spider, caterpillars, moths, butterflies, ladybugs and beetles.

Jenny

I have a little friend that comes
Each spring, year after year,
Who brings a lot of music
And a welcome sort of cheer.
She's just a little brownish wren
Who jumps and skips and hops,
About my door step all the day
Her home, an old tobacco box.
When June comes she is all ajoy,
Fat worms she brings galore
To drop in little gaping mouths,
Within her homely door.

C. C. Miller
Norfolk, Va.

Son of "The Creature From The Black Lagoon"?

A recent news release from New Zealand received by the National Wildlife Federation reports that Prof. L. R. Richardson of Victoria University has captured an immature larval eel three feet long, possibly the baby of a 30-foot adult. When the American Association for the Advancement of Science, in cooperation with UNESCO, held the First International Oceanographic Congress at the UN last year, one of the popular reports was given by Dr. Anton Brunn of Denmark on migration of eels in which he described a larval eel six feet long, one of several specimens he had taken. This would indicate parent eels of huge size. The great eels, 30 to 50 feet long, hooping their way across the ocean waves, might account for some of the sea serpent legends, he said. This newly caught young eel now under study by the Zoology department, Victoria, has a reptilian head, large sharp teeth, and well developed eyes.

Good Books

Two more "outdoor bibles" are now available. *The Upland Game Hunter's Bible* is an excellent paperback book for young hunters. Dan Holland, the author, provides a complete guide to game bird hunting with over 120 photographs and line drawings. $1.95. Doubleday & Company. 192 pp. Ages 10 and up.

The Bass Fisherman's Bible by Erwin A. Bauer is an equally good guide for young fishermen. This is a complete guide to freshwater bass fishing covering methods, equipment, lures, and the fish themselves. This paperback has over 200 photographs and line drawings. $1.95. Doubleday & Co., 190 pp. Ages 10 - up.

The kangaroo rat is one of the tamest and most interesting wild animals in America. This little handfull of soft fur from southwestern U. S. makes an excellent pet at the drop of a hat. The new book, *King of the Castle*, by Rutherford C. Montgomery tells about this kangaroo-like rodent with a white-tipped tail. $2.95, line drawings. World Publishing Company, 62 pp. Ages 8-12.

New Virginia Game Law Digest Available

The State Game Commission has mailed over 300,000 revised "Summary of Virginia Game Laws" digests to its field personnel, license agents and city and county clerks to enable hunters to pick up a copy of the new laws when they purchase their new 1961-62 licenses.

Similar in appearance to the 1960-61 edition, the new game law digest includes these changes:

Elk hunting licenses are not listed because the elk season has been closed.

Goochland and Louisa counties were added to the list of counties which forbid hunting with high-powered rifles and shotguns with slugs.

Henry county was added to the counties where hunting deer with dogs is prohibited.

Hunting seasons and bag limits on several species were changed to conform with new regulations of both statewide and local nature. Species affected include rabbit, grouse, quail, raccoon, elk, deer, squirrel and fox.

The general trapping season was shortened from December 1-March 31 to December 1-March 10, and some changes in local raccoon and fox trapping regulations were included.

Now also known as Digest A-5, the blue, 14-page game law summary may be ordered direct from the Commission at Box 1642, Richmond 13.

Hunters may also obtain from this source free of charge Reprints E-4, E-5, and E-6 which describe, respectively, public hunting and fishing areas in piedmont, western, and tidewater Virginia.

Nansemond County to Take Over Own Dog Law Enforcement

On July 1, Nansemond County employed a dog warden and began to enforce its own dog laws, thus becoming the 81st Virginia county to free the state game warden assigned to that county of dog law enforcement work and allow him to work full time as a fish and game protector.

Foster Studios Photo
M. Rupert Cutler

Cutler Named to Succeed Shomon As Education Chief, Wildlife Editor

M. Rupert Cutler, information officer since June 1958, was appointed chief of the education division of the Commission of Game and Inland Fisheries by Chester Phelps, executive director of the commission, on June 5 following the resignation of J. J. Shomon, who had headed the education division since February 1948.

Cutler, who assumed his new duties June 16, now edits *Virginia Wildlife* magazine on which he had been working as managing editor and circulation manager. At 27, Cutler is the youngest man to be named head of a division of the game commission.

Cutler is a native of Detroit and a graduate of the wildlife management department of the University of Michigan. His interest in wildlife and conservation began during his high school days at Cass Technical High in Detroit when he worked at the Audubon Nature Camp in Maine and collected birds for the Cranbook Institute of Science. He also worked seasonally with the United States Forest Service on the Kaniksu National Forest at Metaline Falls, Washington, in 1952 and with the United States Fish and Wildlife Service on Katmai National Monument, Alaska, in 1953.

Cutler, who received journalism training while earning a B.S. degree at Michigan, has worked as consumer publications writer for Argus Cameras, Inc., editor of the *Winslow Mail*, an Arizona weekly newspaper, and as executive secretary of Wildlife Conservation, Inc., at Boston, Massachusetts.

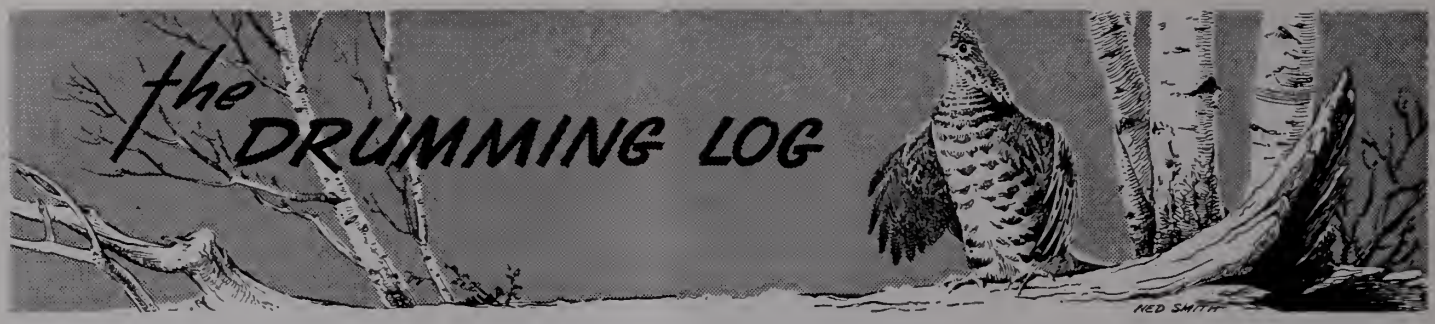
In his new position, Cutler will write editorials as well as articles, attend meetings of the Virginia Inter-agency Committee on Recreation, supervise conservation film production, assist the Virginia Resource-Use Education Council on conservation education affairs, edit law digests, and help coordinate conservation education projects in Virginia. He will continue to supervise the information section, which is responsible for relations with the mass media and for employee communications.

Archers Take One Percent of Annual Deer Bag

Archers accounted for 308 of the 36,166 white-tailed deer bagged in Virginia last season, 58 more than the 1959 statewide bow harvest total of 250 and 42 over the previous record bow harvest of 1958, state game research biologist Jack Gwynn reports.

The 1960 bow harvest represents a 634 percent increase over the bow kill figure of 42 recorded in 1954, the first year archers had a statewide early season on deer. The bulk of the 1960 bow kill (226) was chalked up in west-of-the-Blue Ridge counties; only 82 deer were taken by archers in the eastern counties last season. Virginia bow harvests since 1954:

Year	Total	West of Blue Ridge	East of Blue Ridge
1954	43	14	28
1955	102	75	27
1956	147	118	29
1957	209	159	50
1958	266	201	65
1959	250	196	54
1960	308	226	82



Izaak Walton League Awards Go To Virginia Chapter, State Senator

Benjamin T. Pitts of Fredericksburg, Virginia, was given the conservation award of 1960 by the Izaak Walton League at its 39th annual convention in Chicago for outstanding work in the field of conservation. The league convention was held there June 22-24 in conjunction with a nationwide conservation conference.

Mr. Pitts, a former state senator, has helped promote conservation legislation and has donated 225 acres of land to be used by the Fredericksburg-Rappahannock chapter of the Izaak Walton League in educating Boy Scouts and other youth groups in conservation of natural resources, enjoyment of wildlife and a better firsthand knowledge of man's natural habitat. Transfer of title of this land to the league chapter will ensure its perpetual maintenance in a natural state, one of the principal objectives of the league.

The Virginia Division of the league was given the Arthur Thompson Memorial Ward, presented to the state organization that has done the most in conservation during the preceding year.

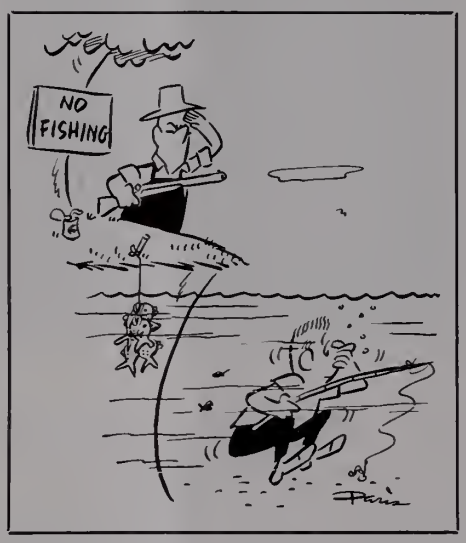
Virginia is the only state that received both state and individual awards for conservation activity.

Basic Migratory Bird Hunting Regulations Amended

The Department of the Interior has announced amendments to the basic migratory bird hunting regulations which will become effective prior to the opening of the 1961-62 hunting seasons.

The revised regulations will limit the total number of birds a hunter may take in one day and the total number he may possess by prescribing an "aggregate daily bag limit" and an "aggregate possession limit." In the past it was possible for a hunter to legally take a daily bag limit on the same day in each of two or more States or areas for which a separate daily bag limit had been prescribed. Under revised regulations a hunter's "aggregate daily bag limit" will be equal to but may not exceed the largest number of birds he can legally take in any one of the States or areas in which he takes birds in any one day.

In order to curb the wanton waste of migratory game birds through the killing of less desirable species for "target practice" with no effort being made to retrieve or utilize such birds, a new regulation requires a hunter to make a



reasonable effort to retrieve any migratory game bird killed by him and include such bird in his daily bag limit.

Other changes approved include a clarification of "termination of possession" by hunters; the addition of the use of artificial decoys and manually or mouth-operated bird calls to the list of permitted hunting methods; the addition of the pistol to the list of prohibited hunting methods; the exportation of lawfully taken and possessed birds; and the importation of red-billed pigeons.

Marine Institute Elevated By Board of Visitors

The Department of Marine Science, a joint academic activity of the College of William and Mary and the Institute of Marine Science, at Gloucester Point, on July 1, 1961 officially became the School of Marine Science of the Colleges of William and Mary in Virginia. This action was implemented by a resolution of the William and Mary Board of Visitors at its May 20, 1961 meeting.

The resolution bestows upon the Dean and faculty of the School of Marine Science broad responsibility for all academic and research marine activity in the entire William and Mary Colleges system. Now included in the system are the College of William and Mary at Williamsburg, The Norfolk College of William and Mary, Richmond Professional Institute, Christopher Newport College in Newport News and Richard Bland College in Petersburg. Also included are the Marshall-Wythe School of Law and the School of Marine Science, plus others.

Dr. William J. Hargis, Jr., formerly Head of the Department of Marine Science, became the first Dean of the newly created School of Marine Science on July 1.

Recreation Study to be Conducted on George Washington Forest

A. H. Anderson, supervisor of the George Washington National Forest, has announced that the Forest Service will conduct a recreation study on a portion of that national forest including North River, Ramsey's Draft, Shenandoah Mountain, Hone Quarry, Briery Branch, Hankey Mountain and Reddish Knob to determine the amount of hunting, fishing, hiking and camping that takes place on this area during a one-year period from June 15, 1961, to June 15, 1962.

Recreation check stations will be established on roads and trails in this area. Headquarters for the study will be the Forest Service cabin Camp Todd.

Packard To Direct Conservation School

The National School of Forestry and Conservation has announced that Fred M. Packard of Fairfax, Va., has been appointed to the school's directorship. He succeeds Charles H. Stoddard, founder, who resigned to join the staff of the Secretary of the Interior.

He will have general supervision over the school's three home study courses which are handled at its office located at 2144 P Street, N.W., Washington 7, D.C.

Boat Number Display Requirements Clarified By U. S. Coast Guard

In a series of interpretive rulings issued June 27, 1961, the U. S. Coast Guard has clarified the requirements for boat numbers and their display on undocumented motorboats.

The first ruling states that the hyphen or space between the prefix letters and numerals or numerals and suffix letter shall be a space equal in width to any letter except I or any number except 1.

Other rulings clarify the "forward half of the vessel" (where number must be displayed) as meaning any part of a vessel forward of a point equidistant from the stem and stern of the vessel. Also it allows the number to be displayed on any portion of the forward half of the hull or permanent super-structure but not underneath flared bows which obscure the clear visibility of the number.

The term "block characters of good proportion" (referring to the numerals and letters used) further means the use of numbers of a plain block style, not slanted, script, or of varying thicknesses. Numbers with borders are not preferred but if used, the border or trim will *not* be considered in determining style, contrast, height, color or background. The numbers must be a minimum of three inches in height, but they may be larger.

Contrast is necessary between the basic color of the number and the background in order to provide distinct visibility and legibility. Black on white or white on black would be the best. Pastel colors often fail to provide sufficient contrast. A backing plate may be used for the background, the real test being legibility and visibility.

Owners of registered motorboats in Virginia must display numbers which comply with these stricter rulings when one of the following events first occurs:

(a) when the owner receives a new certificate of number, or

(b) on and after April 1, 1963.

Enforcement officers of the Virginia Game Commission will be handling these rulings the same as boarding teams from the U. S. Coast Guard.

"I smell something burning."

Look for Leaks Before Casting Off

Many boating tragedies occur every year because boat-owners fail to check the seaworthiness of their craft before casting off from shore.

Allstate Insurance Safety Crusade
Keep leaks out of your craft.

Before taking each boat trip, look for leaks and fix them, regardless of how small they might be. This includes gas leaks, which can be dangerous on open boats, as well as on cabin cruisers.

Check your motor or sails before leaving shore. A breakdown at sea invites trouble, especially if a sudden blow comes up.

Lines are indispensable to the small boat skipper. Examine all lines carefully and regularly over their entire length. If you notice cuts, or if they're heavily frayed, they should be replaced. Wash them free of sand, mud and grit after each trip. Stow them coiled clockwise, in the sun and where there is good circulation of air.

Seaworthiness means more than just keeping the leaks out of your craft. You are required to carry certain equipment aboard at all times, and you should find out what the law requires for your class of boat.

For top seaworthiness, all small boats should be equipped with a bailer or bilge pump, flares or flags, whistle, tool kit, and an extra oar or paddle.

Boat Safety Group is Formed in Roanoke Area

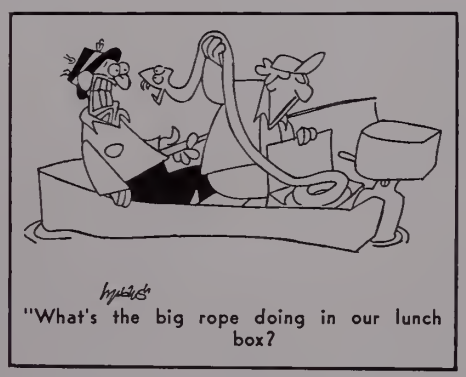
More than 40 boatmen from the Radford, Christiansburg and Roanoke area are now active in the newly-formed Flotilla 93, U. S. Coast Guard Auxiliary presently headquartered in Roanoke.

The primary function of the civilian volunteer group is to promote safety on the water and to perform safety inspections of privately owned craft to insure that they are properly fitted out and carry prescribed safety equipment aboard.

Only those persons who have satisfactorily completed a training course in: Coast Guard History, Seamanship, Communications, Engine fundamentals, First Aid, and practical examinations in Piloting and boat handling subjects are considered for full membership in the Auxiliary.

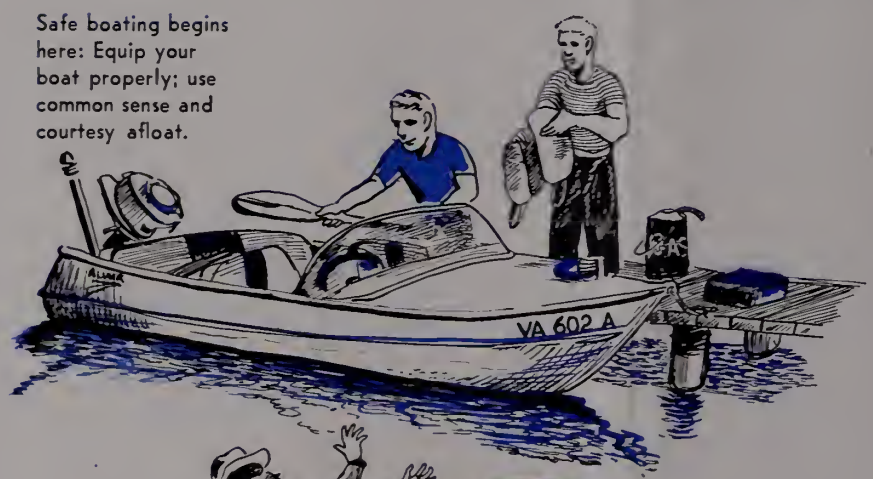
One of the first assignments of the new group was that of traffic patrol at Carvin's Cove, near Roanoke on June 25, when the Salem Rotary Club presented the Claytor Lake Ski Club in a gala water show. The Flotilla also plans to operate this summer on Philpott Reservoir and Claytor Lake.

Anyone desiring any further information regarding membership in the Auxiliary Flotilla may obtain details from Dr. R. H. Hartwell or James T. Rutherford.


"What's the big rope doing in our lunch box?

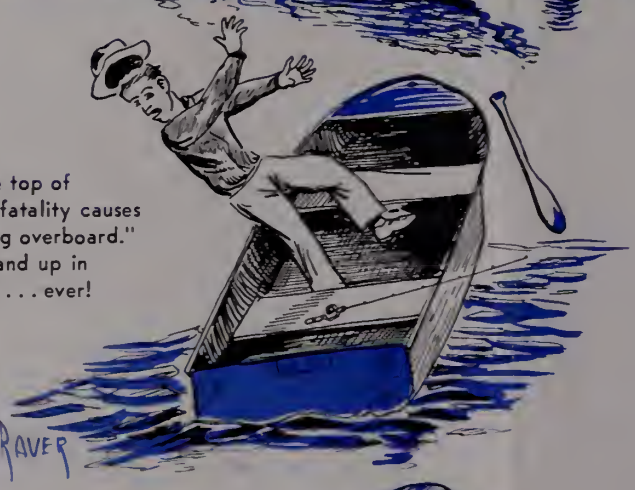
Boating Safety...
it's up to you !

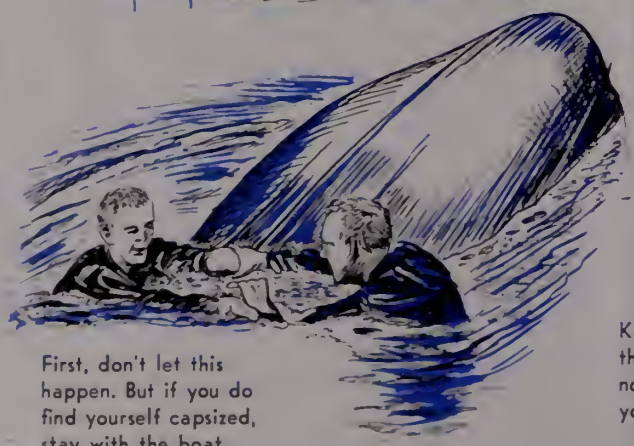
Safe boating begins here: Equip your boat properly; use common sense and courtesy afloat.



Wear an approved life vest or jacket for maximum protection. Other "legal" life saving devices may be out of reach in an emergency.

Near the top of boating fatality causes is "falling overboard." Don't stand up in the boat . . . ever!





First, don't let this happen. But if you do find yourself capsized, stay with the boat.

Keep your eyes "on the road." If you're not looking ahead, you're looking for trouble!